SERVICE MANUAL

VIDEO CASSETTE RECORDER

PR-600E

PROFESSIONAL U-VCR H

SPECIFICATIONS

GENERAL

Power requirement : AC 220 – 240, 100 – 127 V
±10 % ~, 50/60 Hz, 120 W
(130 W with Remote Control Unit)
Dimensions : 44.6(W) × 27.9(H) × 56.2(D) cm
Weight : 34.0 kg
Operating temperature : 5°C to 40°C
Storage temperature : -20°C to 60°C
Operating position : Horizontal only
Tape speed : 9.53 cm/sec
Recording time : Max. 60 min. with JVC KCA-60K
Fast forward time : Less than 4.5 min. for 60 min. tape
Rewind time : Less than 3.5 min. for 60 min. tape
Wow & flutter : Less than 0.15 % RMS

VIDEO

Format : High-Band U-standard
Recording system : Rotary two-head, helical scanning system
Luminance : FM recording
Colour signal : Converted subcarrier direct recording
Video signal system : PAL-type colour, 625 lines (CCIR standard)
Input Line : 0.5 – 2.0 Vp-p, 75 ohms, unbalanced
Y-924 dubbing : Y: 0.5 Vp-p 75 ohms
C: 0.5 Vp-p 75 ohms
Output Line/TV : 1.0 Vp-p, 75 ohms
Y-924 dubbing : Y: 0.5 Vp-p 75 ohms
C: 0.5 Vp-p 75 ohms
Signal-to-Noise ratio : More than 46 dB (colour), More than 47 dB (B/W)
(Rohde & Schwarz noise meter)
Horizontal resolution : Monochrome 370 lines
Colour 270 lines
SC input : 1.0 – 2.0 Vp-p, 75 ohms
Sync input : 0.5 – 4.0 Vp-p, 75 ohms
Time code input : 0 ±6 dBs*, more than 10 k-ohms
Time code output : 0 ±3 dBs*, low impedance (*0 dB = 1.55 Vp-p, pulse)
Input select : LINE/DUB
Video mode select : COLOUR/BW
Sync select : EXT/VIDEO/TBC

AUDIO

Input Line : -20/+4 dBs, 10 k ohms, balanced
Mic. : -60 dBs (use AUDIO IN), 3 k ohms balanced
Output Line : -20/+4 dBs, low impedance, 600 ohms balanced
Monitor : 0 dBs, low impedance, unbalanced
Headphone : -46 ~ -24 dBs variable, 8 ohms load, unbalanced
TV : 0 dBs, low impedance, unbalanced
Signal-to-Noise ratio : More than 48 dB (at 3 % distortion level)
Frequency response : 50 to 15000 Hz
Monitor output selector : AUD-1/MIX/AUD-2

CONNECTORS

Video input/output : BNC connector
Dubbing input/output : 7-pin connector
Sync/SC input : BNC connector
Audio Line input/output : XLR connector
Monitor out : RCA connector
Headphone : 6 mm jack
TV output : EIAJ 8-pin TV connector
Time code input/output : RCA connector
AC in : 3-pin AC connector
Remote control : 45-pin and 9-pin connectors

ACCESSORY : Monitor cable

(Performance data are measurements with JVC's U-VCR tape.)
Design and specifications subject to change without notice.

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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors

5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

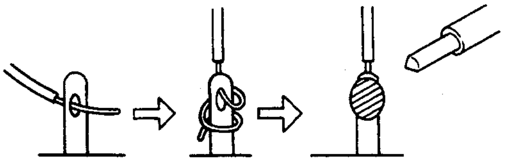


Fig. 1

6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

7. Check that replaced wires do not contact sharp edged or pointed parts.

8. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

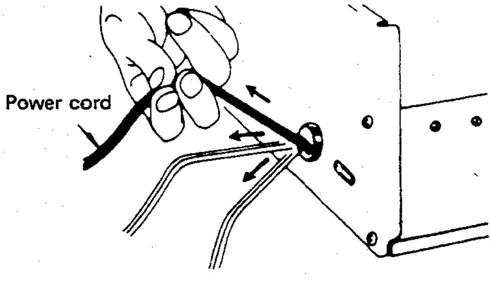


Fig. 2

9. Also check areas surrounding repaired locations.

10. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

11. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

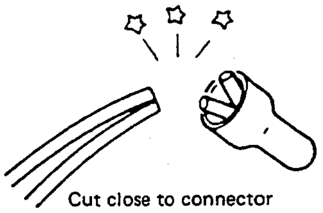


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

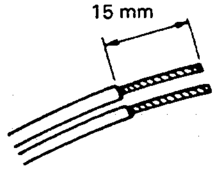


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

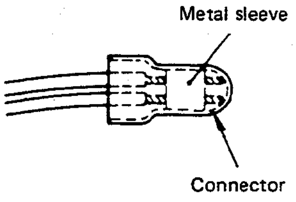


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

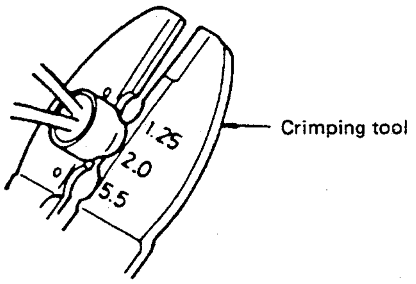


Fig. 6

(5) Check the four points noted in Fig. 7.

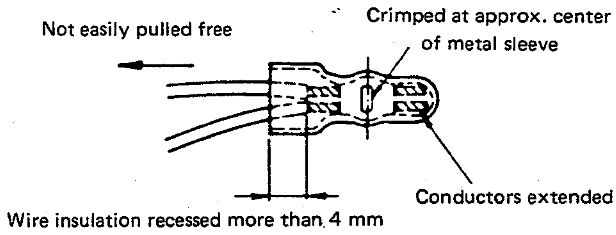

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.
2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.
3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table below.

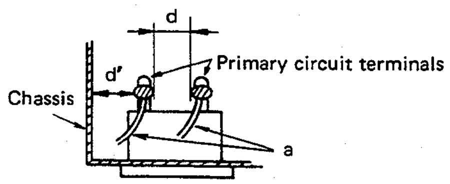


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

   Measuring Method: (Power ON)
   Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure and following table.

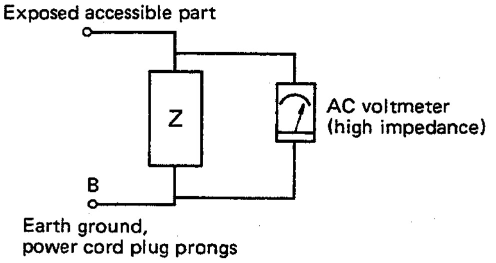


Fig. 9

AC Line Voltage	Region	Insulation Resistance	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	≧ 1 mΩ/500 V DC	1 kV 1 minute	≧ 3 mm
110 to 130 V	USA & Canada	—	900 V 1 minute	≧ 3.2 mm
*110 to 130 V 200 to 240 V	Europe Australia	≧ 10 mΩ/500 V DC	4 kV 1 minute	≧ 6 mm (d) ≧ 8 mm (d') (a: Power cord)

*Class II model only.

Table 1 Ratings for selected areas

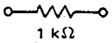
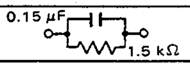
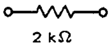
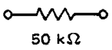
AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (b) to:
100 V	Japan	 1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	 0.15 µF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe Australia	 2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		 50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current ratings for selected areas

Note: This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

JVC Instructions

PROFESSIONAL

VIDEO CASSETTE RECORDER
PR-600E

MANUEL D'INSTRUCTIONS:
MAGNETOSCOPE A CASSETTE A MONTAGE ELECTRONIQUE
BEDIENUNGSANLEITUNG:
SCHNITT-VIDEOREKORDER

PGD30002-92

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

Warning Notice

FOR YOUR SAFETY (Australia)

1. Insert this plug only into effectively earthed three-pin power outlet.
2. If any doubt exists regarding the earthing, consult a qualified electrician.
3. Extension cord, if used, must be three-core correctly wired.

IMPORTANT (In the United Kingdom)
Mains Supply (AC 240 V∿, 50 Hz only)
WARNING – THIS APPARATUS MUST BE EARTHED

The wires in this mains lead are coloured in accordance with the following code:

GREEN-and-YELLOW:	EARTH
BLUE:	NEUTRAL
BROWN:	LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows. The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the safety earth symbol ⏚ or coloured GREEN or GREEN-AND-YELLOW. The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or which is coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

POWER SYSTEM

Connection to the mains supply

This set operates on either 220 – 240 V or 100 – 127 V AC. Before connecting to mains, check that the voltage in your area conforms to the operating voltage of the set.

CAUTION

To prevent electric shock, do not open the cabinet. No user serviceable parts inside. Refer servicing to qualified service personnel.

Note: The rating plate and the safety caution are on the rear of the unit.

This unit is produced to comply with Directive 82/499/EEC.

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PRECAUTIONS

Handling and storage

- Avoid using the PR-600E under the following conditions:
  - – extremely hot, cold or humid places,
  - – dusty places,
  - – near appliances generating strong magnetic fields,
  - – places subject to vibration, and
  - – poorly ventilated places.
- Be careful about moisture condensation.
  Avoid using the PR-600E soon after moving from a cold place to a warm place or soon after heating a room which was cold. Water vapour in the warm air will condense on the still-cold video head drum and tape guides and this moisture may cause damage to the tape and the recorder.
- Handle the PR-600E carefully.
  - Do not place the provided dust cover on the recorder while it is being used.
  - Do not block the ventilation openings.
  - Do not place anything heavy on the recorder.
  - Do not place anything which might spill and cause internal damage on top of the recorder.
  - Use in horizontal position only.
- In case of transportation,
  - Avoid violent shocks to the recorder during packing and transportation.
  - Before packing, be sure to remove the cassette from the recorder.

Video cassettes

- Use KCA series 3/4" U-standard video cassettes. However, the smaller KCS-20K cassettes can also be used with this recorder. To insert the KCS-20K cassette into this recorder, match the cassette's guide groove with the guide ridge on the cassette holder.
- Before recording or editing, make sure that the red cap is in place on the reverse side of the cassette. Without this cap, recording and editing are impossible. Remove this cap when you want to protect the recording against accidental erasure.

FEATURES

Performance

Using improved circuitry, the PR-600E reproduces pictures more accurately and with less noise than any other 3/4" U-VCR available today.

- Y-924 Dubbing System – for cleaner transfers with less discolouration.
- Y-Frequency Response control.
- Improved Dropout Compensation.
- Automatic H-Phase control.
- Vertical interval head switching.

Convenience

With careful attention to human engineering, the PR-600E was given a range of features that make operation simpler and, for the most part, foolproof.

- Built-in Preroll function for backspace editing.
- Audio dub function.
- Digital Tape-Time and Frame counter – with built-in lap timer.
- Search – several different speeds from 1/30 to 15 times normal speed in the forward direction and from 1/30 to 20 times normal speed in the reverse direction.
- Full capstan control in all modes.
- Separate-channel audio level meters, video/tracking meter with level controls.
- Independent audio limiters.
- Electronic skew control.
- Large, illuminated pushbuttons.

Flexibility

The PR-600E was designed to make its high-performance features usable in the widest possible variety of systems and applications.

- Front loading – for rack mounting convenience.
- Serial and parallel edit control connectors.
- RF output for external DOC.
- External Sync and Subcarrier inputs.
- Balanced XLR audio.
- EBU time code channel – with address track.
- Switching regulator power supply.

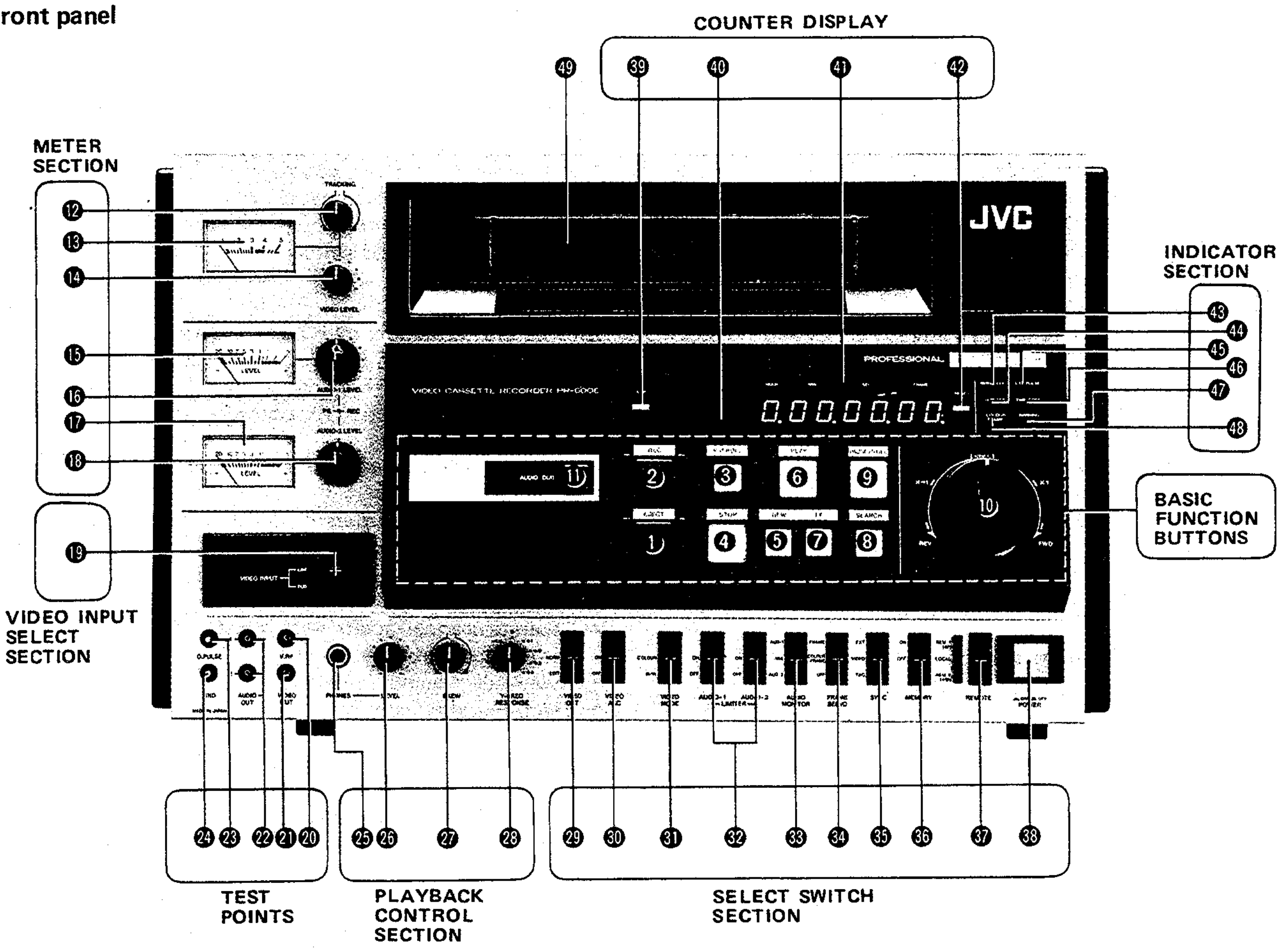
Reliability

Anticipating rough, continuous operation, JVC engineers built the PR-600E to take the punishment of industrial use, with a number of systems to assist maintenance and troubleshooting.

- Complete direct-drive transport system – with independent reel servos.
- Diagnostic warning system – microprocessor detection and indication of electronic and mechanical dysfunction.
- Hour meter.
- Front-panel test points.
- Diecast chassis.

CONTROLS AND CONNECTORS

Front panel


COUNTER DISPLAY
㊾ 39 40 41 42
METER SECTION
12 13 14 15 16 17 18
VIDEO INPUT SELECT SECTION
19
JVC
PROFESSIONAL
VIDEO CASSETTE RECORDER
INDICATOR SECTION
43 44 45 46 47 48
BASIC FUNCTION BUTTONS
1 2 3 4 5 6 7 8 9 10 11
24 23 22 21 20
TEST POINTS
25 26 27 28
PLAYBACK CONTROL SECTION
29 30 31 32 33 34 35 36 37 38
SELECT SWITCH SECTION

BASIC FUNCTION BUTTONS

❶ **EJECT button**
Press to eject the cassette. Ejection of the cassette can be done from any mode. When the EJECT button is pressed, the indicator will light. After the completion of tape unloading, the cassette is automatically ejected.

❷ **Record button (REC)**
Press together with the PLAY button to start recording the video and audio signals. When the REC button is pressed during playback, the monitor screen switches from the playback picture to the E-E mode picture, allowing you to monitor the signals applied to the input terminals.

❸ **PREROLL button**
Operative in the Still mode. When this button is pressed, the IN indicator lights to show that the edit-in point has been stored in memory; the tape is rewound by 5 seconds of programme time and enters the Standby mode with the PREROLL indicator lit. If the PLAY, STOP or EJECT button is pressed in this status, the PREROLL indicator turns off and the Preroll mode is cancelled with the preroll edit-in point still held in memory. To erase the edit-in point from memory and turn the IN indicator off, change the display to the LAP mode and press the RESET button.

❹ **STOP button**
When a cassette is inserted, the tape is loaded automatically and stopped (this state is referred to as the Stop mode). The STOP indicator remains lighted.
Press the STOP button once to engage the Standby mode from any other mode. To enter the Stop mode, press the STOP button once again.

❺ **Rewind button (REW)**
This functions in two ways; for rewind and reverse search. This button can be pressed from any mode except Record; when it is pressed in the Play mode, the reverse search is engaged with the tape running at about 20 times normal speed. In either case, rewind or reverse search, the REW indicator will light. To release the REW or Search mode, press any button corresponding to the mode you wish to enter next.

❻ **PLAY button**
Press to start playback. The PLAY indicator will light. Press together with the REC button to start recording. The PLAY button can be pressed directly from the FF or REW mode without pressing the STOP button.

❼ **Fast forward button (FF)**
This functions in two ways; for fast forward and forward search. This button can be pressed from any mode except Record; when it is pressed in the Play mode, the forward search is engaged with the tape running at about 15 times normal speed. In either case, fast forward or search, the FF indicator will light. To release the FF or Search mode, press any button corresponding to the mode you wish to enter next.

❽ **SEARCH button**
Press to change the playback speed instantly to that previously set with the rotary search dial.

⑨ **PAUSE/STILL button**
Press to stop the tape temporarily during recording or playback. To release the Pause or Still mode, press any button corresponding to the mode you wish to enter next. If the STOP button is pressed from any mode other than Standby, the PAUSE/STILL and STOP indicators will light and the recorder will enter the Standby mode.

⑩ **Search dial**
This seach dial becomes operative when it is turned or by pressing the SEARCH button ⑧.
When the dial is set to STILL (centre position), the Still mode is engaged. When the dial is turned clockwise toward FWD, forward playback takes place at a speed corresponding to the dial setting. When the dial is turned counterclockwise toward REV, reverse playback takes place at a speed corresponding to the dial setting. The search speed is continuously variable between 1/30 and 10 times normal in both directions. When the dial is turned fully clockwise or counterclockwise past the 10-times-normal setting, the maximum search speed of about 15 times (forward) or 20 times (reverse) normal is obtained. If the control mode is changed by any function button, the dial setting remains unchanged; when the SEARCH button ⑧ is pressed, playback speed and direction corresponding to the dial setting are automatically restored.

⑪ **AUDIO-DUB button**
Channel-1 soundtrack can be dubbed. For audio dubbing, press this button together with the PLAY button.

METER SECTION

⑫ **TRACKING control**
To remove noise bars during playback, turn this control so that the meter ⑬ makes its maximum deflection.

⑬ **TRACKING/VIDEO LEVEL meter**
This meter functions as a tracking meter during playback and as a video level meter except during playback and search.

⑭ **VIDEO LEVEL control**
To adjust the video level manually, set the VIDEO AGC switch ㉚ to OFF and turn this control so that the meter ⑬ deflects into the green area.

⑮ **AUDIO-1 LEVEL meter**
This meter indicates the level of the audio-1 signal during recording and playback.

⑯ **AUDIO-1 LEVEL control**
To adjust the audio-1 recording level, turn the outer control so that the meter ⑮ deflects to "0" with the loudest signal. For playback level control, use the inner knob.

⑰ **AUDIO-2 LEVEL meter**
This meter indicates the level of the audio-2 signal during recording and playback.

⑱ **AUDIO-2 LEVEL control**
To adjust the audio-2 recording level, turn the outer control so that the meter ⑰ deflects to "0" with the loudest signal. For playback level control, use the inner knob.

VIDEO INPUT SELECT SECTION

⑲ **VIDEO INPUT select switch**
Selects the video input signal applied to the VIDEO IN connector or the DUB IN (Y-924) connector.

TEST POINTS

⑳ **Video head output signal test point (V-RF)**
The video signal is output in the form of an FM signal during playback, allowing clogged or worn heads to be detected.

㉑ **VIDEO OUT signal test point**
To check the signals output from the rear panel VIDEO OUT connectors.

㉒ **AUDIO OUT signal test points (1, 2)**
To check the signals output from the rear panel AUDIO OUT connectors.

㉓ **D-PULSE pin**
Connect to the external trigger terminal of an oscilloscope.

㉔ **GND pin**
Connect to the ground terminal of an oscilloscope.

PLAYBACK CONTROL SECTION

㉕ **PHONES jack**
Connect a set of headphones having an impedance of 8 ohms. The signal selected with the AUDIO MONITOR switch ㉝ can be heard.

㉖ **PHONES LEVEL control**
Turn to adjust the output level of the PHONES jack.

㉗ **SKEW control**
Turn this control to correct the playback picture if the upper part is bent horizontally.

㉘ **Y-FREQ RESPONSE control**
Turn to adjust the Y-signal output response to make the picture look sharper or softer. Normally set it to "0".

[illegible]

㉙ **VIDEO OUT switch**
NORM: Set to this position for normal playback.
EDIT: Set to this position when using the PR-600E as a source playback deck for editing.

㉚ **VIDEO AGC switch**
Set to ON to activate the built-in video AGC circuit.

㉛ **VIDEO MODE select switch**
Select one of the two positions according to the input signal during recording or the output signal during playback.
COLOUR: Set to this position when the input or playback video signal is a colour signal.
B/W: Set to this position when the input or playback signal is a monochrome signal. Higher picture resolution will be obtained.

㉜ **Audio LIMITER switches (AUDIO-1, AUDIO-2)**
Set to ON to activate the built-in audio limiter circuit. The limiter circuit can be switched on or off separately for the two audio tracks and manual level control is possible even when the limiter circuit is switched on.

㉝ **AUDIO MONITOR select switch**
This switch selects the audio output available from the 8-pin TV connector, headphone jack or AUDIO MONITOR connector.

AUD-1: To hear channel-1 audio.
MIX: To hear a mixture of channel-1 and channel-2 audio.
AUD-2: To hear channel-2 audio.

㉞ **FRAME SERVO switch**
Normally set this switch to the COLOUR FRAME position. If colour frame editing is not necessary, set it to the FRAME position. For the PR-600E used as a player, this switch should be set to the FRAME position.

㉟ **SYNC select switch**
For selecting between different reference sync signals for the servo systems during recording and playback.

EXT: To lock to the external sync signal applied to the EXT SYNC IN connector on the rear panel.
VIDEO: To lock to the incoming video signal of the selected input.
TBC: To lock to the sync signal from a Time Base Corrector (TBC). With this switch set to TBC, the external subcarrier mode is automatically engaged, and stable still and search pictures will be obtained.

㊱ **MEMORY switch**
This switch engages tape memory function.

ON: The tape stops automatically when it is rewound or fast forwarded to the point corresponding to the counter reading of "0" and the unit enters the Stop mode.
OFF: No automatic operation.

㊲ **LOCAL/REMOTE select switch**

REM-1: Set to this position when the recorder is to be remote-controlled with the remote control unit connected to the 9-pin REMOTE-1 connector.
LOCAL: Set to this position when the recorder is to be controlled with its own function buttons. (With this switch set to the LOCAL position, the remote control unit connected to the rear panel 45-pin REMOTE-2 or 9-pin REMOTE-1 connector will not function.)
REM-2: : Set to this position when the recorder is to be remote-controlled with the remote control unit connected to the 45-pin REMOTE-2 connector.

(No function buttons of the recorder except EJECT will function when this switch is set to either REMOTE position.)

㊳ **POWER button**
Press to turn the power on. The level meters and the counter display will be illuminated. Pressing again will switch the power off.

㊴ **LAP button**
When this button is pressed to ON, the display indicates the elapsed time from the edit-in point, if it has been entered, or from the previous edit-in point, if no new edit-in point has been entered.

㊵ **IN indicator**
When an edit-in point is entered in memory, the LED lights.

㊶ **Counter display**
Indicates tape running in hours, minutes, seconds, and frames. Also indicates edit points, edit lap time and the duration of edits.

㊷ **Counter reset button (RESET)**
Press to reset the tape or lap time counter to zero.

㊸ **SERVO LOCK indicator**
Lights when the servo system is locked for normal operation.

㊹ **H-PHASE indicator**
Lights when the recorder and player become in phase.

㊺ **CTL PULSE indicator**
Lights when a tape with no control pulses recorded is played back.

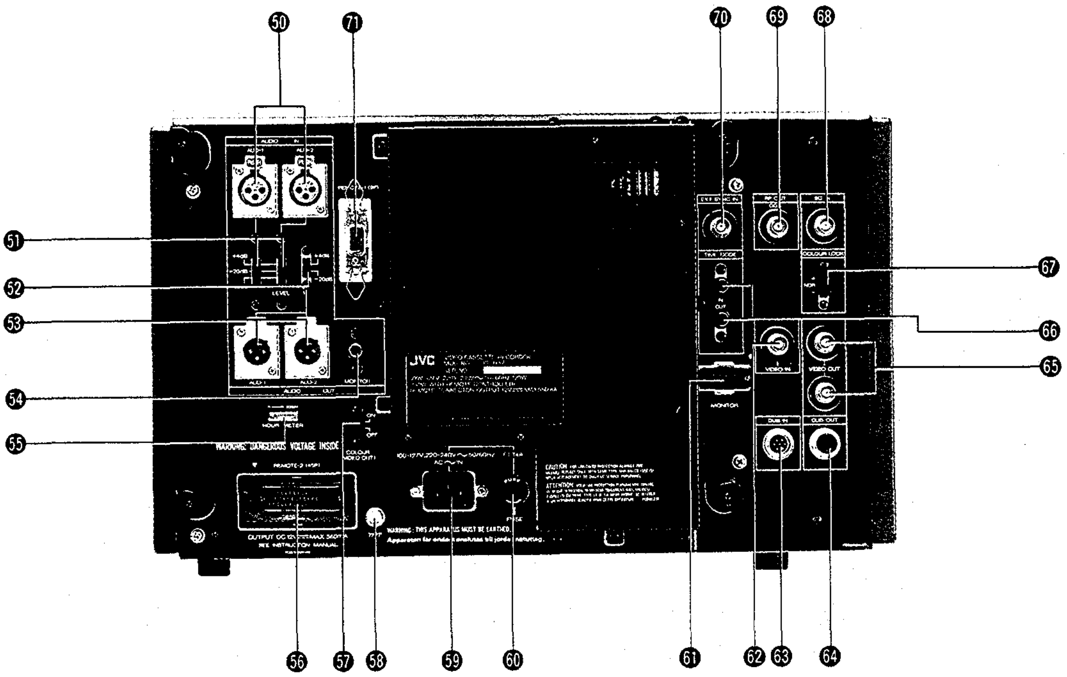
㊻ **TIME CODE indicator**
Lights when a tape with time codes recorded is played back.

㊼ **WARNING display**
Two-digit figures indicate various malfunctions for easy troubleshooting.

㊽ **COLOUR FRAME indicator**
Lights when a tape recorded in the Colour Frame mode is played back.

㊾ **Cassette loading slot**
With the POWER button pressed to ON, insert a video cassette with its labelled edge facing toward you. The cassette carriage itself will automatically take control and retract the cassette into the correct loaded position.

Rear panel



㊿ **Audio line input connectors (AUDIO IN, AUD-1, AUD-2)**
Audio input connectors for audio channel-1 and channel-2.

(51) **Audio input level select switches (AUDIO IN LEVEL)**
Select +4 dB, -20 dB or -60 dB for each channel independently.

(52) **Audio output level select switch (AUDIO OUT LEVEL)**
Select either +4 dB or -20 dB according to the level of the audio output signal. The level is switched for both audio channels simultaneously.

(53) **Audio line output connectors (AUDIO OUT, AUD-1, AUD-2)**
Output connectors for audio channel-1 and channel-2.

(54) **AUDIO OUT MONITOR connector**
The audio signal selected by the AUDIO MONITOR switch is present at this connector.

(55) **Hour meter**
This indicates the total operating time. After 2,000 hours of operation, the red line moves to the right end of the scale.

(56) **REMOTE-2 control connector**
Connect a JVC 45-pin remote control unit.

(57) **COLOUR (VIDEO OUT) switch**
Normally set this switch to ON. With this switch set to the OFF position, the chroma signal component is removed from the output signal. Use this function for playback with a black-and-white television.

(58) **Ground terminal**

(59) **AC IN socket**
Connect to an AC power outlet.

(60) **FUSE holder**

(61) **TV MONITOR connector**
This is an 8-pin output connector for the connection of a TV monitor. The audio signal selected by the AUDIO MONITOR switch is present at the audio output terminal.

(62) **VIDEO IN connector**
Line input connector for video signals.

(63) **DUB IN connector**
Receives Y-924 signals from the dubbing output socket of a source VCR via the 7-pin dubbing cable.

(64) **DUB OUT connector**
For applying Y-924 signals to the dubbing input socket of a recording VCR via the 7-pin dubbing cable.

(65) **VIDEO OUT connectors**
Line output connectors for video signals.

(66) **TIME CODE connectors (IN/OUT)**
Connect a time code generator to the TIME CODE IN connector when you wish to record the EBU time code. To obtain the time code for editing, connect a time code reader to the TIME CODE OUT connector.

(67) **COLOUR LOCK switch**
Select "+" or "-" to correct playback pictures if they lose colour or if there are erratic changes in colour.

(68) **Subcarrier input connector (SC IN)**
Input connector to accept external subcarrier signals such as from a time base corrector (TBC).

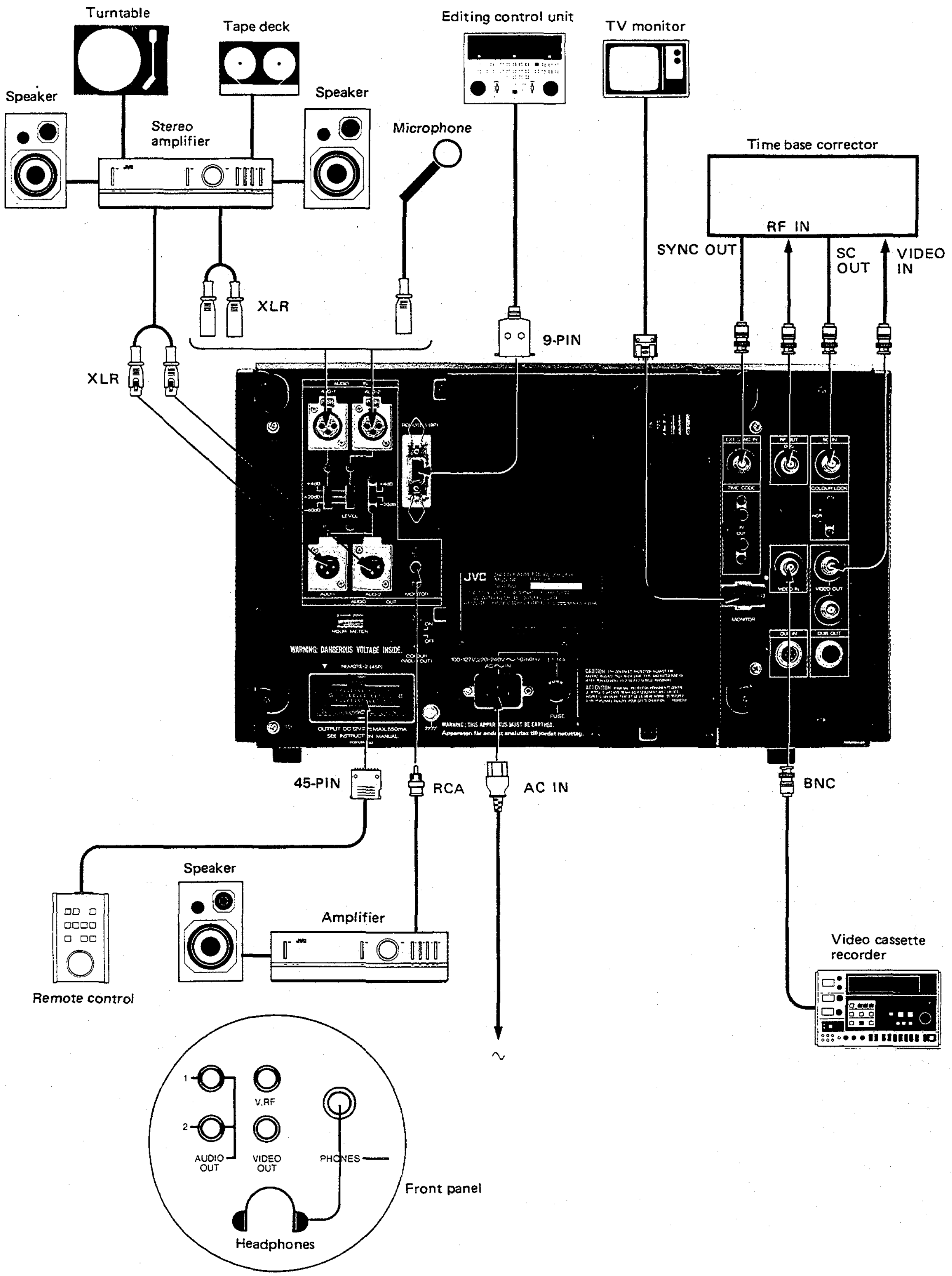
(69) **RF OUT connector**
For connection to a DOC (Dropout Compensator) or the DOC input terminal of a time base corrector.

(70) **External sync signal input connector (SYNC IN)**
This input connector accepts an external reference sync signal when the recorder is to be operated in the external sync mode. The external sync signal can be a composite sync signal or a composite video signal.

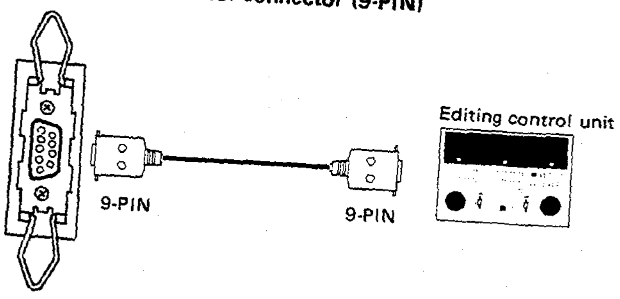
(71) **REMOTE-1 control connector**
Connect a 9-pin remote control unit.

CONNECTIONS

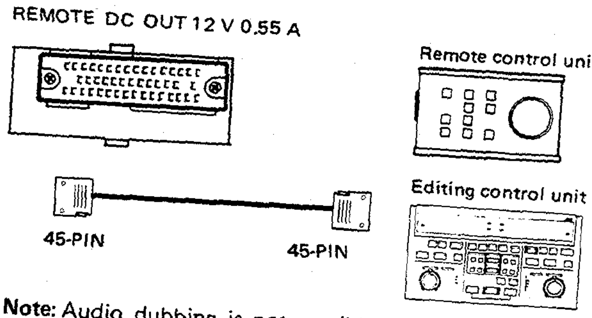
VIDEO AND AUDIO EQUIPMENT CONNECTIONS


Turntable
Tape deck
Speaker
Stereo amplifier
Speaker
Microphone
Editing control unit
TV monitor
Time base corrector
RF IN
SYNC OUT
SC OUT
VIDEO IN
XLR
XLR
9-PIN
45-PIN
RCA
AC IN
BNC
Speaker
Amplifier
Remote control
Video cassette recorder
1
2
AUDIO OUT
V.RF
VIDEO OUT
PHONES
Front panel
Headphones

1. REMOTE-1 control connector (9-PIN)

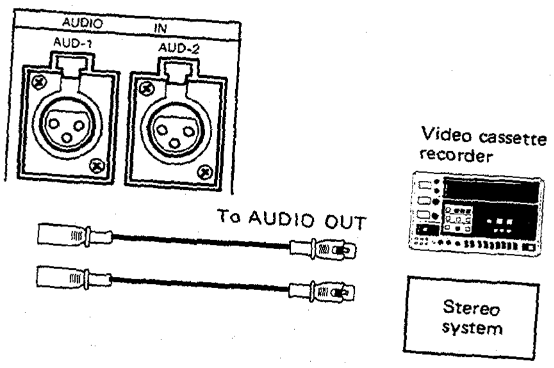

9-PIN
9-PIN
Editing control unit

2. REMOTE-2 control connector (45-PIN)

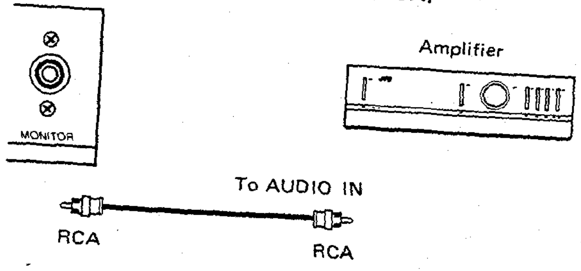

REMOTE DC OUT 12 V 0.55 A
Remote control unit
45-PIN
45-PIN
Editing control unit

Note: Audio dubbing is not possible when the RM-70U is used.

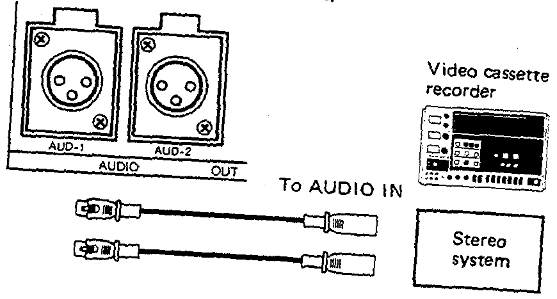
3. AUDIO IN connectors (XLR)


AUDIO IN
AUD-1
AUD-2
Video cassette recorder
To AUDIO OUT
Stereo system

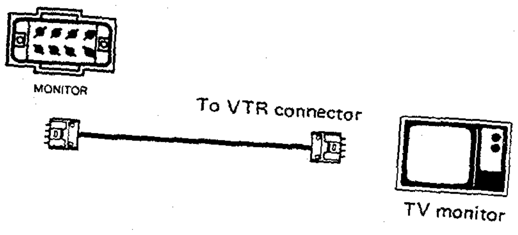
4. AUDIO OUT MONITOR connector (RCA)


MONITOR
Amplifier
To AUDIO IN
RCA
RCA

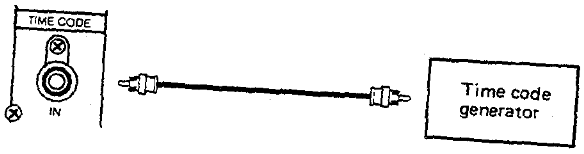
5. AUDIO OUT connectors (XLR)


AUD-1
AUD-2
AUDIO OUT
Video cassette recorder
To AUDIO IN
Stereo system

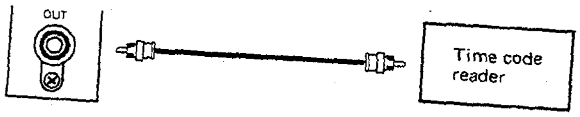
6. MONITOR connector (8-PIN)


MONITOR
To VTR connector
TV monitor

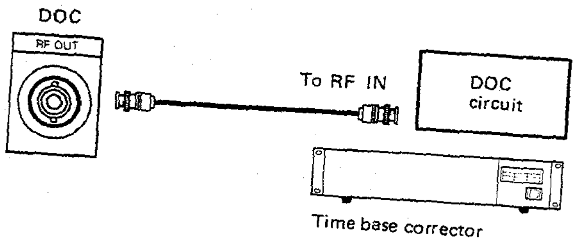
7. TIME CODE IN connector (RCA)


TIME CODE
IN
Time code generator

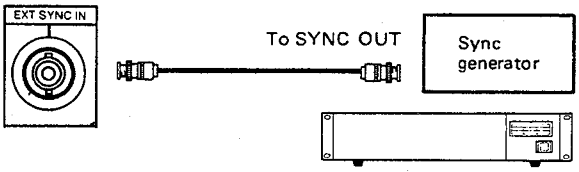
8. TIME CODE OUT connector (RCA)


OUT
Time code reader

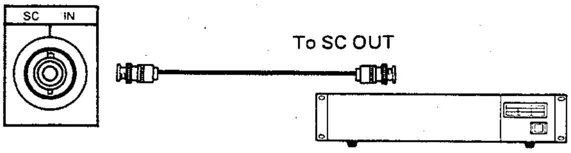
9. RF OUT connector (BNC)


DOC
RF OUT
To RF IN
DOC circuit
Time base corrector

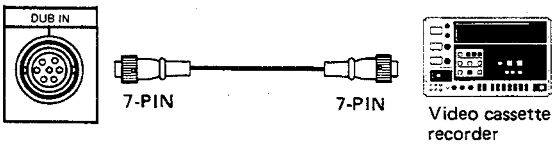
10. EXTERNAL SYNC IN connector (BNC)


EXT SYNC IN
To SYNC OUT
Sync generator
Time base corrector

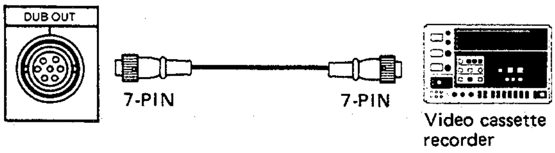
11. SC IN connector (BNC)


SC IN
To SC OUT
Time base corrector

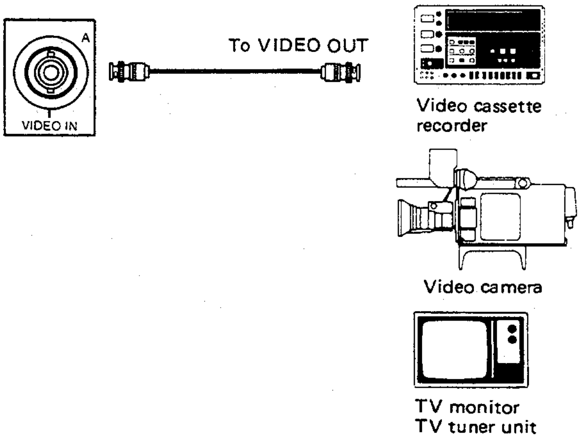
12. DUB IN connector (7-PIN)


DUB IN
7-PIN
7-PIN
Video cassette recorder

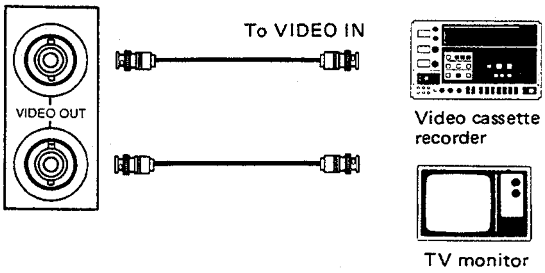
13. DUB OUT connector (7-PIN)


DUB OUT
7-PIN
7-PIN
Video cassette recorder

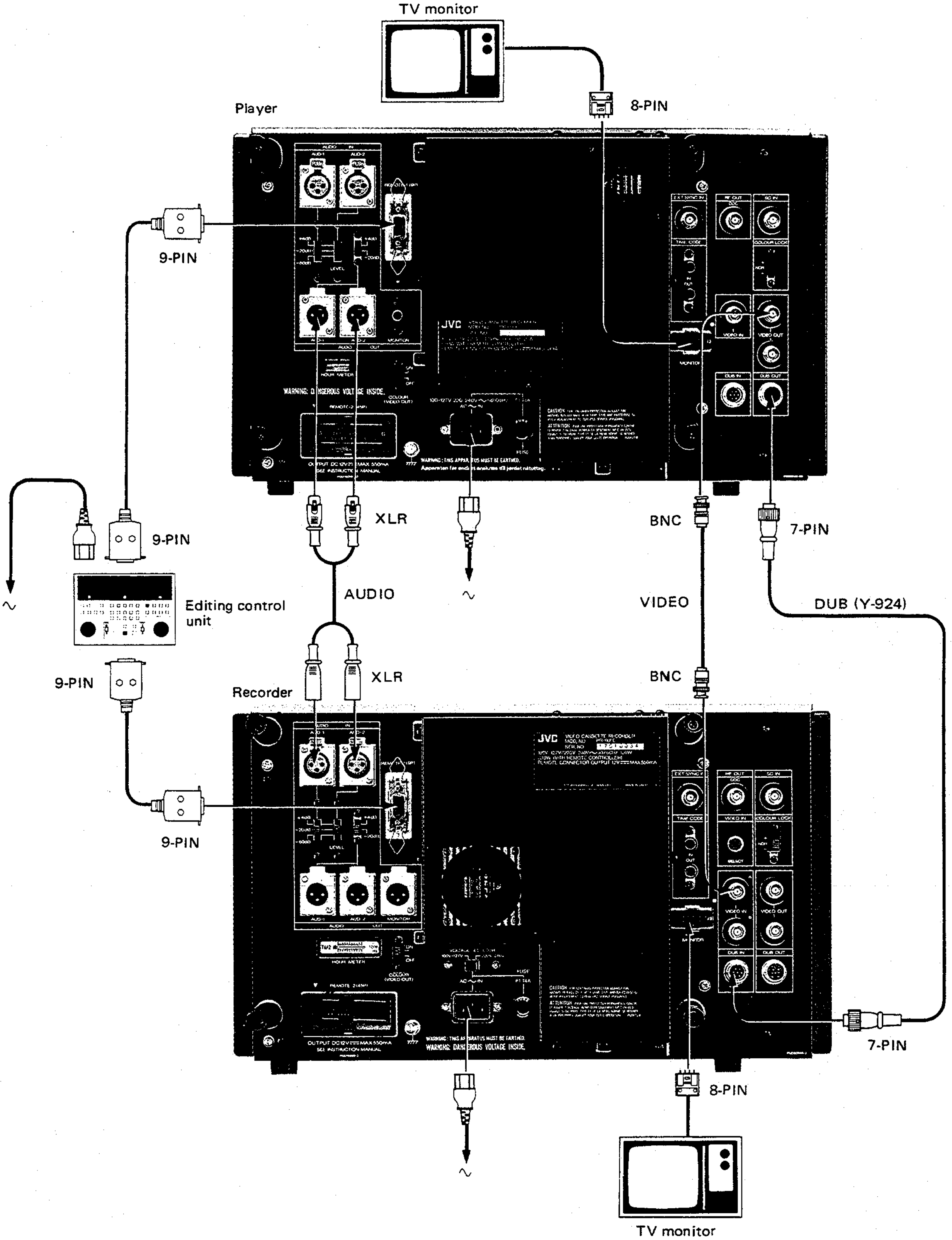
14. VIDEO IN connector (BNC)


A
VIDEO IN
To VIDEO OUT
Video cassette recorder
Video camera
TV monitor
TV tuner unit

15. VIDEO OUT connectors (BNC)


VIDEO OUT
To VIDEO IN
Video cassette recorder
TV monitor

EDITING CONNECTIONS


TV monitor
8-PIN
Player
9-PIN
9-PIN
XLR
BNC
7-PIN
Editing control unit
AUDIO
VIDEO
DUB (Y-924)
9-PIN
XLR
BNC
Recorder
9-PIN
7-PIN
8-PIN
TV monitor

INSERTING A VIDEO CASSETTE

PREPARATIONS

1. Press the POWER button to ON.
   - If you are going to record, make sure the red cap is in place on the reverse side of the cassette. Without this cap, recording is impossible. Remove this cap when you want to protect the recording against accidental erasure.
2. Insert a video cassette into the cassette loading slot.
   - The STOP indicator will flash while the cassette is being automatically retracted into the correct loaded position.
   - The automatic loading mechanism will operate only when the cassette is inserted correctly.
   - If loading does not result in positioning the cassette correctly, it will automatically be ejected after about 6 seconds.
   - If you want to eject a cassette, press the EJECT button. The cassette will automatically be ejected.

STANDBY MODE

After the unit enters the Stop mode, press the PAUSE/STILL and STOP buttons simultaneously to enter the Standby mode. In the Standby mode both the PAUSE/STILL and STOP indicators will light. To enter the Standby mode from any other mode, simply press the STOP button. Pressing the STOP button once again engages the Stop mode.

PLAYBACK

PLAYBACK PROCEDURE

- Normally set the VIDEO MODE select switch to COLOUR. If the recording is monochrome, you can set it to B/W.
- Normally set the rear panel COLOUR (VIDEO OUT) switch to ON. If the recording is low-band, you can set it OFF.

1. Press the PLAY button. The Play indicator will light and playback starts.
2. Adjust the TRACKING and SKEW controls to optimize the playback picture.
   - If the playback picture colour is abnormal, correct it using the COLOUR LOCK switch on the rear panel.
   - If you wish to adjust image clarity, turn the Y-FREQ RESPONSE control.
   - If you wish to monitor the signal applied to the input connector during playback, press the REC button in the Play mode. The input signal will appear on the monitor screen.
   - Do not press the REC and PLAY buttons simultaneously, otherwise the unit will enter the Record mode and the recording on the tape will be erased.
3. If you wish to view a still picture, press the PAUSE/STILL button during playback. To release the Still mode, press the PLAY button.
   - When the tape reaches its end, it enters the Rewind mode.

Note:
When the Play mode is entered from the Stop mode, the picture may roll and no colour may appear in the first 1 or 2 seconds. To avoid this happening, start playback from the Standby mode.

EXTERNAL LOCK PLAYBACK

When playback is to be locked to an external sync signal, proceed as follows:

1. Apply a reference sync signal to the EXT SYNC IN connector. Use a composite sync signal or a composite video signal as the reference signal.
2. Set the SYNC select switch to EXT.
   - If a TBC is connected, set it to TBC.
3. Press the PLAY button to start playback.

Note:

- Playback of tapes with no time code recorded results in malfunctioning of the time code reader, if connected.

VARIABLE-SPEED DIAL SEARCH IN BOTH DIRECTIONS

This function is very useful in locating edit points quickly. The search speed is continuously variable between about 1/30 and 10 times normal in both directions. When the dial is fully turned clockwise, forward search at about 15 times normal speed is engaged. When the dial is fully turned counterclockwise, a reverse search speed of about 20 times normal is available.

1. Turn the search dial until the desired search speed is reached.
   - The STILL position (centre click-stop) provides a still picture.
   - Turn the dial clockwise to search in the forward direction; counterclockwise to search in the reverse direction.
   - The X1 click-stop provides normal speed in the forward direction and X-1 gives normal speed in the reverse direction.
   - There is another click-stop between X1 and FWD and between X-1 and REV. This is the position for the 10 times normal speed.
   - The fully clockwise or counterclockwise position corresponds to the maximum search speed of about 15 or 20 times normal.
2. To cancel the adjusted speed, simply press the PLAY, PAUSE/STILL, REW, FF or STOP button depending on the mode to be entered next. The dial setting remains unchanged.
   - To enter the dial search mode again, press the SEARCH button. The speed corresponding to the dial setting will be restored instantly.

Note:

- With a multi-system monitor, the picture becomes monochrome in the reverse search at 10 times normal speed, if the monitor's system selector is in the AUTO mode. Set it to the PAL position.

SHUTTLE SEARCH & REW/FF

When the REW or FF button is pressed in the Stop mode, normal rewind or fast forward takes place. When these buttons are pressed in the Play, Search or Still mode, the tape runs at about 15 times (forward) or 20 times (reverse) normal speed in the corresponding direction. The buttons can be locked and the indicator lights. You can follow the speeded-up picture on the monitor screen.

Note:

When controlled by a remote controller connected to the REMOTE-2 socket, the search speed is about 15 times normal in both directions.

COUNTER SEARCH

1. Reset the tape counter to "0.00.00.00" at the starting point of recording, or at the point from which you wish to play back again.
2. Set the MEMORY switch to ON.
3. When you wish to rewind or fast forward the tape to the point where the counter was reset, press the REW or FF button.
4. When the counter reading of "0.00.00.00" is reached, the tape stops automatically and the Standby mode is entered.

Note:

The tape may sometimes run over "0.00.00.00" for about one second.

AUTOMATIC REWINDING

When the tape is fully wound to the end in the Play or Record mode, it is automatically rewound to the beginning and enters the Stop mode. The counter search function is operative also during this automatic rewinding.

When the tape is fully wound to the end in the Fast Forward mode, the Standby mode is entered automatically.

RECORDING

RECORDING PROCEDURE

1. Normally set the VIDEO MODE select switch to COLOUR. When making a point to record monochrome signals, set it to B/W.
2. Normally set the SYNC select switch to VIDEO.
3. Set the INPUT select switch as required.
   LINE: Set to this position when recording video signals from the VIDEO IN connector and audio signals from the AUDIO IN connectors.
   DUB: Select this position for Y-924 dubbing. For details of Y-924 dubbing, refer to page 14.
4. Press the PLAY and REC buttons simultaneously to enter the Record mode. By adjusting the VIDEO LEVEL control, recording can be performed at optimum recording level.
5. Press the STOP button to stop recording.

Note:

- It might happen that, at the beginning section of the tape, when the Record mode is specified while in the Still mode, the Record mode is not entered but, after prerolling, the Still mode is reentered. This is because, during prerolling, the Still mode automatically engages when the leader section of the tape is reached. To remedy this after prerolling, press the PLAY button first and then press the PLAY and REC buttons simultaneously to enter the Record mode. Or hold the PLAY and REC buttons pressed for longer than 3 seconds; then the Record mode will be entered. This problem is apt to occur after search rewind. Be cautious.

EXTERNAL-LOCK RECORDING

In order to record video signals synchronized with an external sync signal, proceed as follows:

1. Apply an external sync signal to the EXT SYNC IN connector.
2. Set the SYNC select switch to EXT.
3. Apply the video signals to be recorded to the VIDEO IN connector.
4. Set the INPUT select switch to LINE.
5. Set the FRAME SERVO switch to FRAME.
6. Press the PLAY and REC buttons simultaneously to enter the Record mode.

- If the input video signal is not phase-locked to the external sync signal, distortion, caused by the switching points of the video heads, will appear in the playback picture of recordings made according to procedures outlined above.
- External-lock recording is also possible during dubbing. For this purpose, apply the same external sync signal to the EXT SYNC IN connectors of both the player and recorder and set the SYNC select switches of both the player and recorder to EXT.

TAPE DUBBING

1. Connect the player and the recorder with each other according to instructions described on page 10.
2. If you wish to drive the player locked to an external sync signal, set the SYNC select switch of the player to EXT.
3. Set the SYNC select switch of the recorder to VIDEO.
4. Set the INPUT select switch of the recorder as required.
   LINE: Set to this position for VIDEO-VIDEO dubbing.
   DUB: Set to this position for Y-924 dubbing.
5. Set the player's FRAME SERVO switch to FRAME and the recorder's FRAME SERVO switch to COLOUR FRAME.
6. Put the player in the Play mode and the recorder in the Record mode.

AUDIO DUBBING

If you wish to record only audio while playing back the pre-recorded tape, employ the audio dubbing facility. Sound from a source connected to the CH-1 AUDIO IN connector can be recorded on the channel-1 audio track.

1. Connect a source to the relevant connector.
2. Press the AUDIO DUB button together with the PLAY button to start audio dubbing.
3. To stop audio dubbing, press the STOP button.

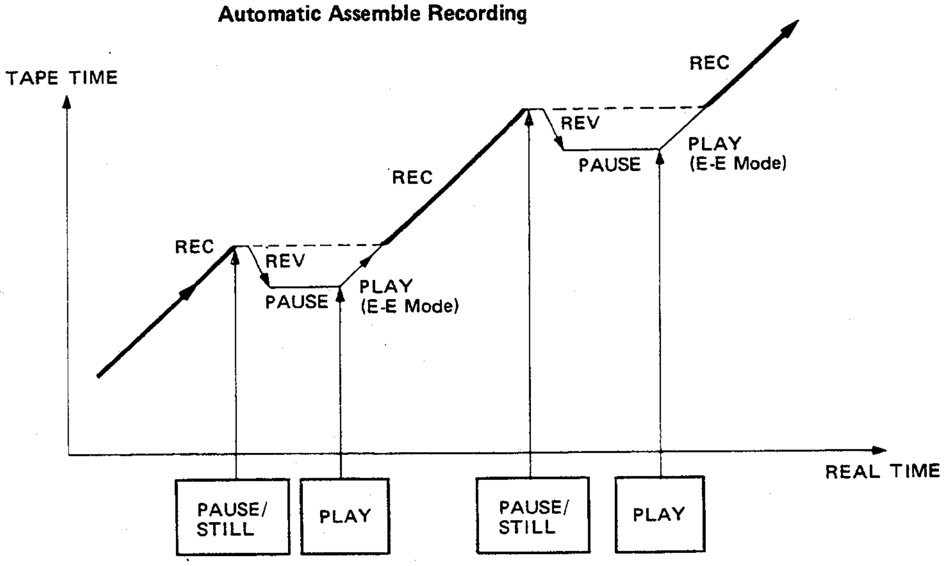
- The pause function facilitates audio dubbing. First play back the pre-recorded tape and press the PAUSE/STILL button at the point from which you wish to start audio dubbing. Then press the AUDIO DUB and PLAY buttons simultaneously. This permits you to start audio dubbing exactly at the right point.
- Both the sound being recorded and the channel-2 soundtrack can be monitored by switching with the AUDIO MONITOR select switch, throught the PHONES jack or AUDIO MONITOR connector.

PAUSE CONTROL AND ASSEMBLE-RECORDING

If you wish to stop recording temporarily and re-start recording immediately following the end of the previous recording, employ the PAUSE/STILL button in the following manner. This will produce assembled recordings with no distortion between recorded segments.

1. Press the PAUSE/STILL button during recording. The Record mode is released (with the Record indicator remaining lighted) and the tape stops in the Pause mode after being automatically rewound by about 2 seconds of programme time.
2. To re-start recording, press the PLAY button. First the Play mode is entered (however, the output signal is not the tape playback signal, but the input signal to be recorded). When playback proceeds to the point where the previously recorded segment was stopped with the PAUSE/STILL button (it takes about 2 seconds), the Play mode is automatically switched to the Record mode.

Automatic Assemble Recording



Y-924 DUBBING

On a 3/4" tape, the video signal is recorded in the form of an FM carrier signal, with an imbedded chroma signal at a much lower frequency (924 kHz). In normal video transfers, the player converts the 924 kHz to 4.43 MHz and demodulates the FM signal to a luminance signal (Y). It then combines the 4.43 MHz chroma signal with the Y signal and those eventually become the composite video signal, which is transferred to the recorder via a coaxial cable. In the Y-924 dubbing, the conversion processes that the chrominance signal passes through are eliminated.

This method transfers the demodulated luminance (Y) and unconverted chroma (924 kHz) separately, via a multi-conductor cable (7-pin).

The result is a cleaner transfer with less discolouration.

REFERENCE SYNC SIGNALS FOR RECORDING AND PLAYBACK

The reference sync signal for the servo systems during recording and playback differs as illustrated below, depending on the settings of the SYNC and INPUT select switches and the conditions of the signals applied to the input terminals.

SYNC switch Input signal		EXT	VIDEO	TBC
EXT-SYNC	VIDEO			
O	O	EXT	VIDEO	EXT
O	X	EXT	INT	EXT
X	O	VIDEO	VIDEO	VIDEO
X	X	INT	INT	INT

O : Input signal present   X : No input signal

OPERATING PRECAUTIONS

Pause/Still mode
Do not leave the PR-600E in the Pause or Still mode for a lengthy period of time as this could damage the tape.
As the Pause or Still mode continues, the tape moves slightly according to the elapsed time.

Elapsed time	Tape movement
Approx. 2 min 30 sec	Tape is fed by several frames forward and the Pause/Still mode continues.
Approx. 5 min	Tape is fed by another several frames forward and the Pause/Still mode continues.
Approx. 7 min 30 sec	Tape is fed by another several frames forward and the Pause/Still mode continues.
Approx. 10 min	Tape movement stops and the Stop mode is automatically engaged.

Synchronization of the editing servo
The servo circuit of the PR-600E is locked to the input video signal or the external sync signal regardless of the editing mode selected.

Therefore, when the recorder's SYNC select switch is set to the VIDEO position, its servo circuit is affected by the playback conditions of the player. For instance, if the player is in the Still or Search mode, the playback picture from the recorder (while in the Play mode) may become unsynchronized.

In order to obtain a stable playback picture from the recorder, it is recommended that the player be in the Stop mode or in the Play mode (if the tape on the player contains normal recordings), or use an external sync signal with the SYNC select switch set to the EXT position.

The reference sync signal for the servo systems during recording and playback differs as illustrated above, depending on the settings of the SYNC and INPUT select switches and the conditions of the signals applied to the input terminals.

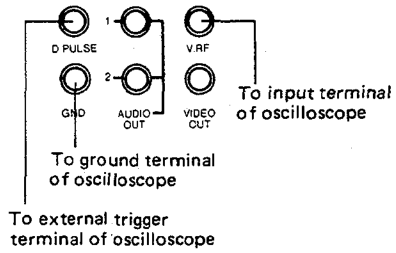
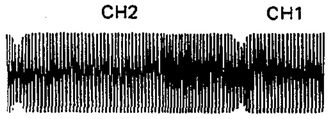
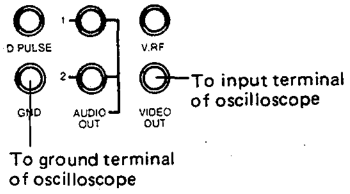
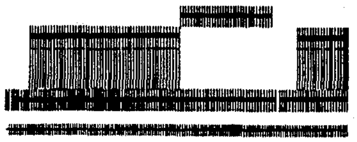
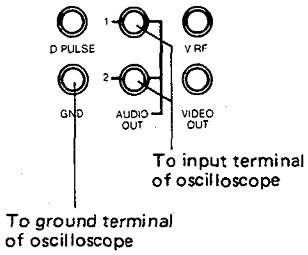
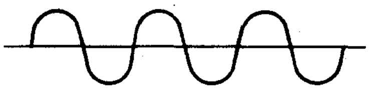
FRAME SERVO switch
During tape-to-tape dubbing using tapes with an inferior playback picture S/N ratio, duplicates of more than three generations, tapes recorded using random-interlaced ITV cameras or edited using other manufacturers' editors, picture distortion may occur at edit points. This is due to malfunctioning of the framing servo. To avoid this, set the FRAME SERVO switch to the OFF position.

Monitor synchronization in the Still and Search modes
The playback video signal incorporates a vertical sync pulse (V-pulse) so that the monitor remains synchronized even in the Still and Search modes. Because of this pulse, if other manufacturers' monitors are used, horizontal sync may be partially lost (the top of the picture may be distorted). If this happens, set the SYNC switch to TBC.

We recommend use of the external sync mode
The external sync mode (EXT SYNC) will stabilize the entire servo system, thereby producing stabler playback pictures. We recommend use of the external sync mode whenever possible.

TEST POINTS

The output signals from the video heads and audio tracks are available at the front panel test points. Connect an oscilloscope to these test points to check the performance and condition of the unit.

Connection	Items to be checked	Standard waveform
Video head output  1 D PULSE V.RF 2 GND AUDIO OUT VIDEO OUT To input terminal of oscilloscope To ground terminal of oscilloscope To external trigger terminal of oscilloscope	•Compatibility of tape pattern •Tape-to-head contact •Tape running stability •Tracking •Abnormality in RF	•"+" triggered 
Video signal output  1 D PULSE V.RF 2 GND AUDIO OUT VIDEO OUT To input terminal of oscilloscope To ground terminal of oscilloscope	•Quality of recording and playback •Clogged head •Video signal level	
Audio signal output  1 D PULSE V RF 2 GND AUDIO OUT VIDEO OUT To input terminal of oscilloscope To ground terminal of oscilloscope	•Quality of recording and playback •Tape-to-head contact, dirty head (fluctuation of audio level) •Alignment of audio head	•Approx. 0 dBs output at reference input level •Output impedance: less than 5 k-ohms 

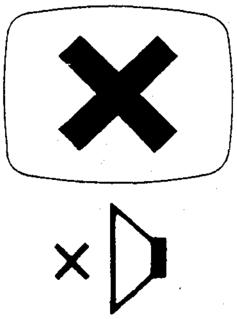
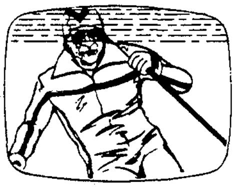
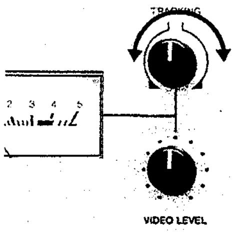
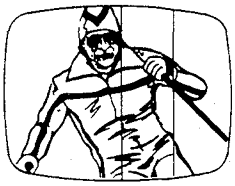
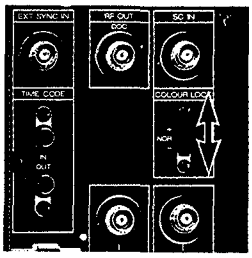
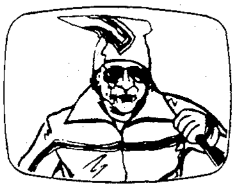
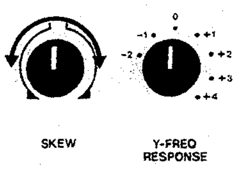
DIAGNOSTIC CODES

The WARNING display indicates various malfunctions and warnings by numerical codes.
A Ⓦ mark in the "Diagnostic code" column means that this display flashes.
With the flashing codes, it is necessary to turn the power off in order to recover the machine.

Diagnostic code	Cause of trouble or warning	Symptoms
Related to sensors 01	Tape-end sensor LED is blown out.	●If this happens with the tape already loaded, the Stop mode engages and all controls except EJECT become inoperative. ●If the tape-end sensor is blown out, an inserted cassette is rejected and cannot be loaded.
02	Moisture condensation.	●If this occurs with the tape already loaded, the Stop mode engages, the drum motor stops and all controls except EJECT become inoperative. ●If there is condensation, an inserted cassette is rejected and cannot be loaded. (Recovers when the dew sensor becomes dry.)
03 Ⓦ	Tape slack.	●If this is detected during operation, the tape stops and all controls become inoperative.
04 Ⓦ	Reel servo power insufficient.	●All operations stop and all controls are inoperative.
Related to tape loading mechanism 30	Tape cannot be drawn out of the cassette.	●The cassette will be ejected. Insert it again.
31 Ⓦ	Tape cannot be stored inside the cassette.	●Storing operation will be re-performed. If OK, the cassette is ejected and display turns off. If not, all controls become inoperative.
32	Tape cannot be loaded correctly.	●The tape will be unloaded and the cassette ejected. Insert cassette again.
33 Ⓦ	Tape cannot be unloaded.	●All controls become inoperative.
34	Load end zone switch cannot be detected during tape loading.	●The tape will be unloaded and then attempt at loading re-performed. If OK, the Stop mode engages and the display turns off.
35	After "34", reloading fails.	●The tape will be unloaded and stored inside the cassette. The cassette will be ejected. Insert it again.
38 Ⓦ	Pinch roller solenoid does not release.	●All controls become inoperative.

Diagnostic code	Cause of trouble or warning	Symptoms
Related to cassette compartment 40	Cassette compartment does not retract.	•The cassette will be ejected. Insert it again.
41Ⓦ	Cassette compartment does not lift.	•Retracting will be performed again. If able to complete retraction, controls become inoperative when the compartment reaches the fully retracted position.
42Ⓦ	After "41", retracting fails.	•All controls become inoperative.
Related to leader tape 50	After tape is fully drawn from the cassette, the leader is not detected (at the beginning or end of tape).	•FF engages and, when the white leader is detected, REW engages. When the white leader is detected in REW, the cassette will be ejected. •The display turns off when a cassette is inserted again.
51	After tape is fully loaded, the leader is not detected (at the beginning of tape).	•FF engages and, when the white leader is detected, the tape is unloaded and stored in the cassette. Then the cassette is ejected. The display turns off when a cassette is inserted again.
52	After tape is fully loaded, the leader is not detected (at the end of tape).	•REW engages and, when the white leader is detected, the tape is unloaded and stored in the cassette. Then the cassette is ejected. The display turns off when a cassette is inserted again.
53	After tape is fully loaded, the leader is detected (at the end and beginning of tape).	•The tape is unloaded and stored in the cassette. Then the cassette is ejected. The display turns off when a cassette is inserted again.
55	Tape-end braking mode is not released.	•The tape is unloaded and stored in the cassette. Then the cassette is ejected. The display turns off when a cassette is inserted again.
Related to motors 70	Drum motor stops.	•All controls except EJECT are inoperative. Recovers when a cassette is inserted again.
71	Capstan motor stops.	•All controls except EJECT are inoperative. Recovers when a cassette is inserted again.
72	Supply reel motor stops.	•All controls except EJECT are inoperative. Recovers when a cassette is inserted again.
73	Take-up reel motor stops.	•All controls except EJECT are inoperative. Recovers when a cassette is inserted again.

IN CASE OF DIFFICULTY

Symptoms	Check points	Remarks
No picture, No sound 	• Check if the VTR/TV switch of the TV monitor is set to the VTR position. If not, set it to VTR.	• For more information refer to the instruction manual of the TV monitor.
Noise bars or smeared picture 	• Check if the TRACKING control has moved off centre. • Turn the TRACKING control slowly until the picture clears. 	• After playing back the tape, return this control to its centre click-stop position.
Monochrome picture, wrong tint or colour stripes 	• Set the COLOUR LOCK switch so that the correct colours are obtained.  EXT SYNC IN RF OUT SC IN TIME CODE COLOUR LOCK IN OUT	• Adjustment of colour, tint, brightness and contrast cannot be done with this switch. • After playing back the tape, return this switch to its centre position.
Skew – upper portion of the picture drifts horizontally. 	• Use the SKEW control to correct this phenomenon. • First turn the V-hold control of the television so that the frame line (corresponding to the blanking period) can be seen and turn the SKEW control slowly in either direction until slight bending of this frame line is corrected.  0 -1 +1 -2 +2 +3 +4 SKEW Y-FREQ RESPONSE	• Do not turn the SKEW control during recording. • After playing back the tape, return this control to its centre click-stop position.

SECTION 1
DISASSEMBLY

1.1 REMOVAL OF CABINET ASSEMBLY

1.1.1 Removal of top cover

1. Remove the four screws Ⓐ to remove the top cover.

1.1.2 Removal of side covers and handle plates

1. Remove the four screws Ⓑ securing a side panel and proceed the same for another side to remove both the side covers.
2. Remove the eight screws Ⓒ securing a handle plate and proceed the same for another side to remove both the handle plates.

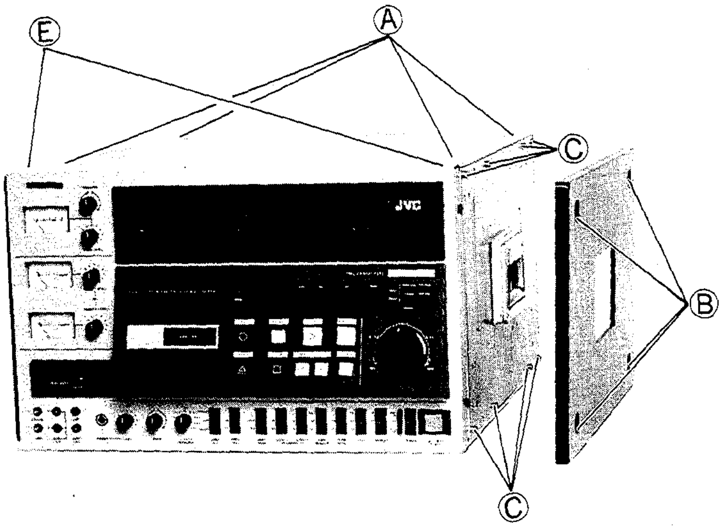


Fig. 1-1

1.1.3 Removal of front panel

1. Remove the top cover.
2. Remove the VR knob and felt washers first.
3. Remove the five screws Ⓔ to remove the front panel.

Note: 1) Before removal of the front panel, set the unit upright (turn the front panel upward) to proceed the work with ease.
2) Before re-assembling the front panel, make sure to arrange connectors to set at the proper positions. Also set the switches on the panel for horizontally position.

1.1.4 Removal of bottom cover

1. Remove the four screws Ⓓ to remove the bottom cover.

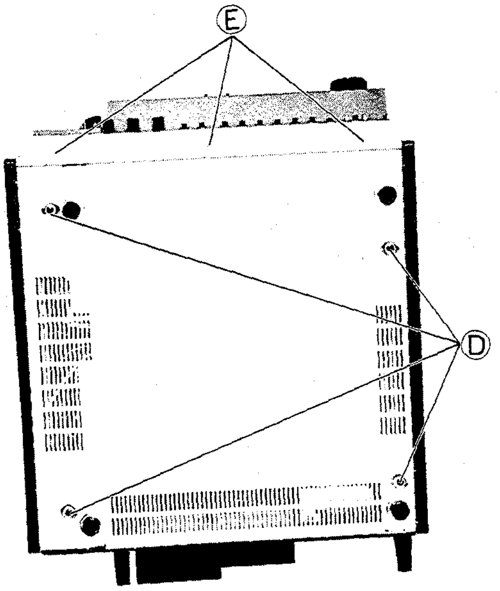


Fig. 1-2

1.1.5 Removal of rear panel

1. Remove the top cover.
2. Remove the screws Ⓕ (seven), Ⓖ (three), Ⓗ (four) and the switch protector Ⓘ to remove the rear panel.

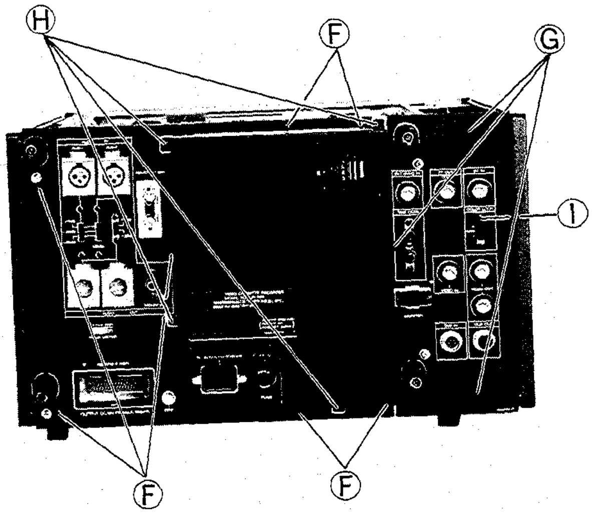


Fig. 1-3

1.1.6 Removal of power unit

1. Lift up the DRUM/CAP SERVO board and pull out the power connector for disconnection.
2. Remove the four screws Ⓙ and remove the switching

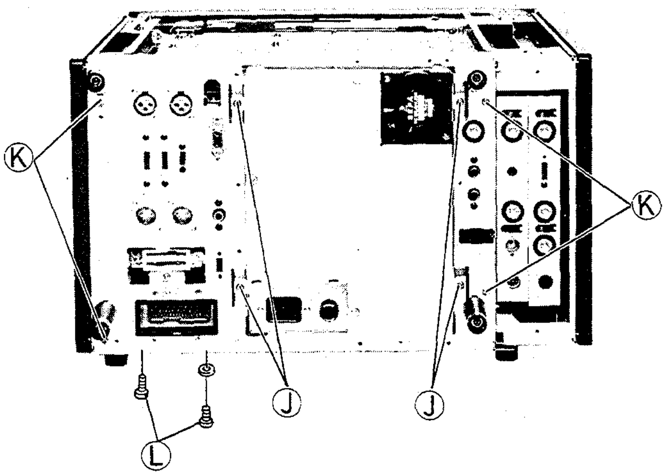


Fig. 1-4

1.1.7 Removal of connector panel

1. Remove the screws Ⓚ (four) on Fig. 1-4 and the connector bracket screws Ⓛ (two) to remove the connector panel.

Notes:

- Before removal of the connector panel, set the unit upright (turn the left side panel upward) to proceed the work with ease (as shown in Fig. 1-5).
- When removing and re-assembling the connector panel, pay careful attention to wires since some of them are short.

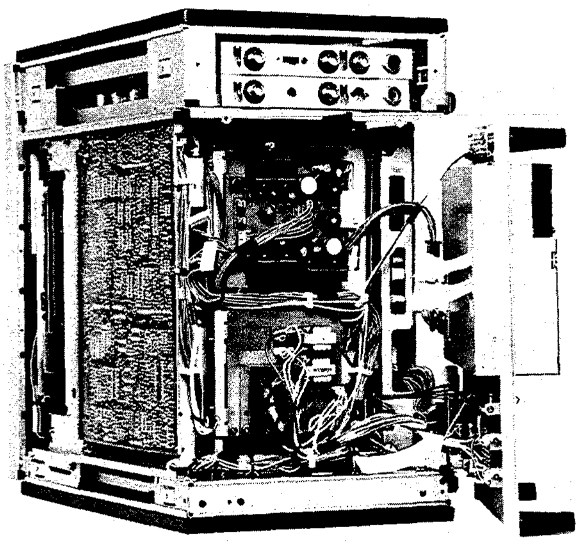


Fig. 1-5

1.2 LOCATION OF MAIN PARTS

1.2.1 Top view

1. To expose the DRUM/CAP SERVO board, loosen the two screws Ⓐ and lift it up.

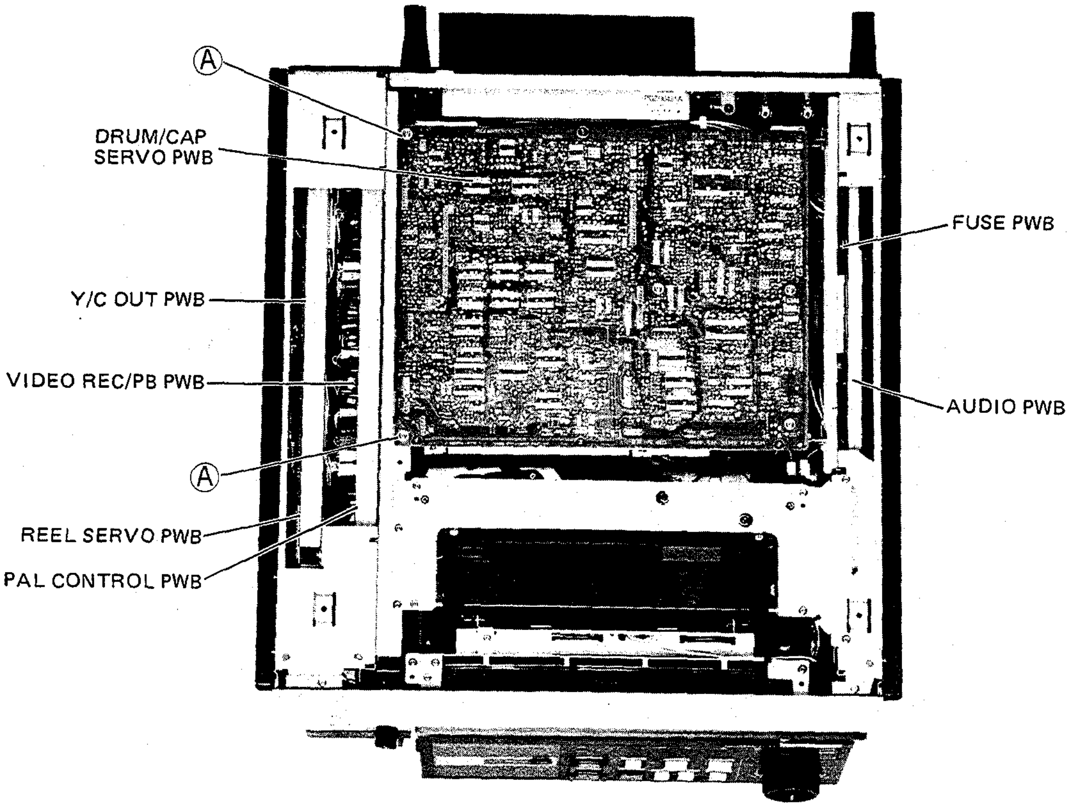

Ⓐ
DRUM/CAP SERVO PWB
Y/C OUT PWB
VIDEO REC/PB PWB
Ⓐ
REEL SERVO PWB
PAL CONTROL PWB
FUSE PWB
AUDIO PWB

Fig. 1-6

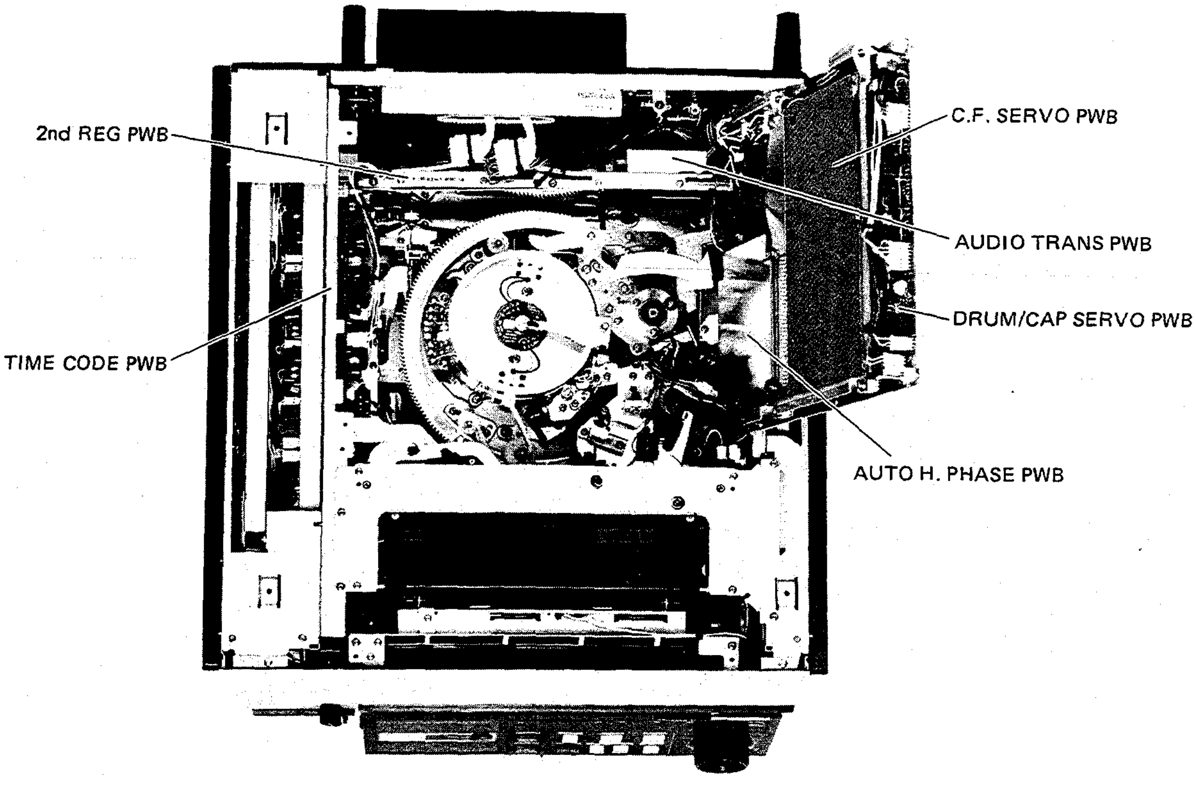

2nd REG PWB
TIME CODE PWB
C.F. SERVO PWB
AUDIO TRANS PWB
DRUM/CAP SERVO PWB
AUTO H. PHASE PWB

Fig. 1-7

1.2.2 Bottom view

1. Remove the four screws Ⓑ and pull the board to this side to expose the inside parts.
2. By disengaging the hook on the top side of the SYSCON PWB, the INTERFACE PWB can be exposed.

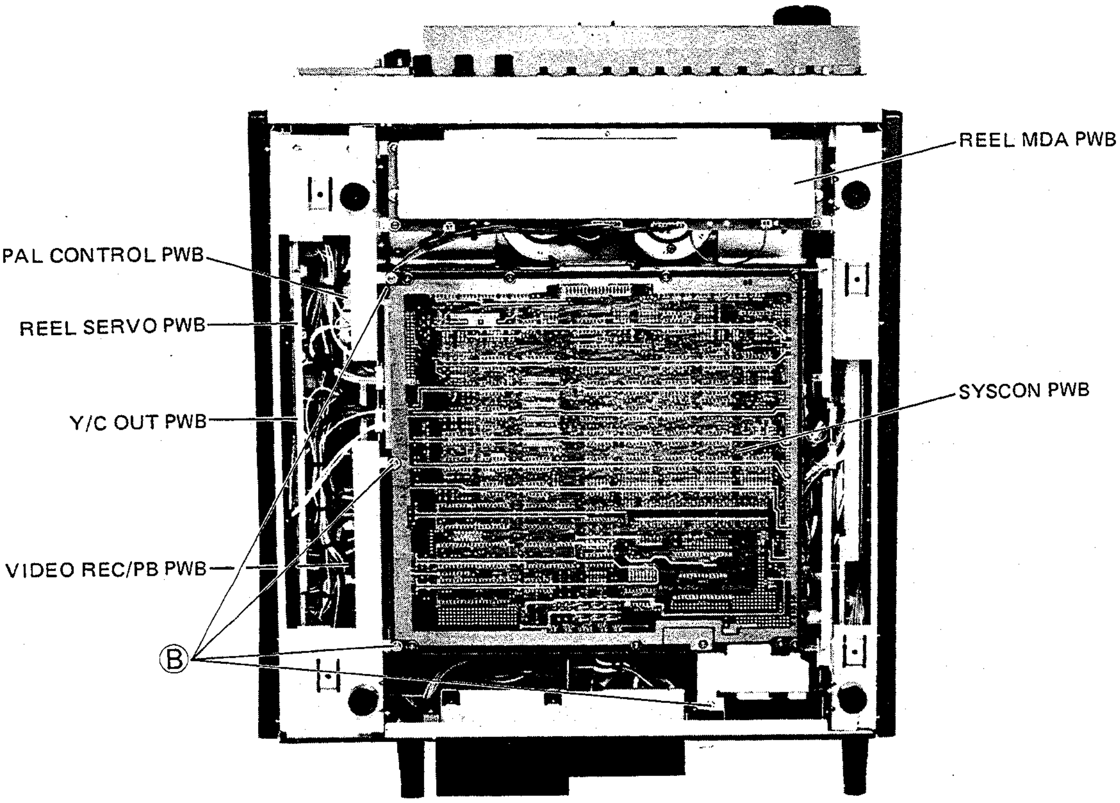

REEL MDA PWB
PAL CONTROL PWB
REEL SERVO PWB
SYSCON PWB
Y/C OUT PWB
VIDEO REC/PB PWB
Ⓑ

Fig. 1-8

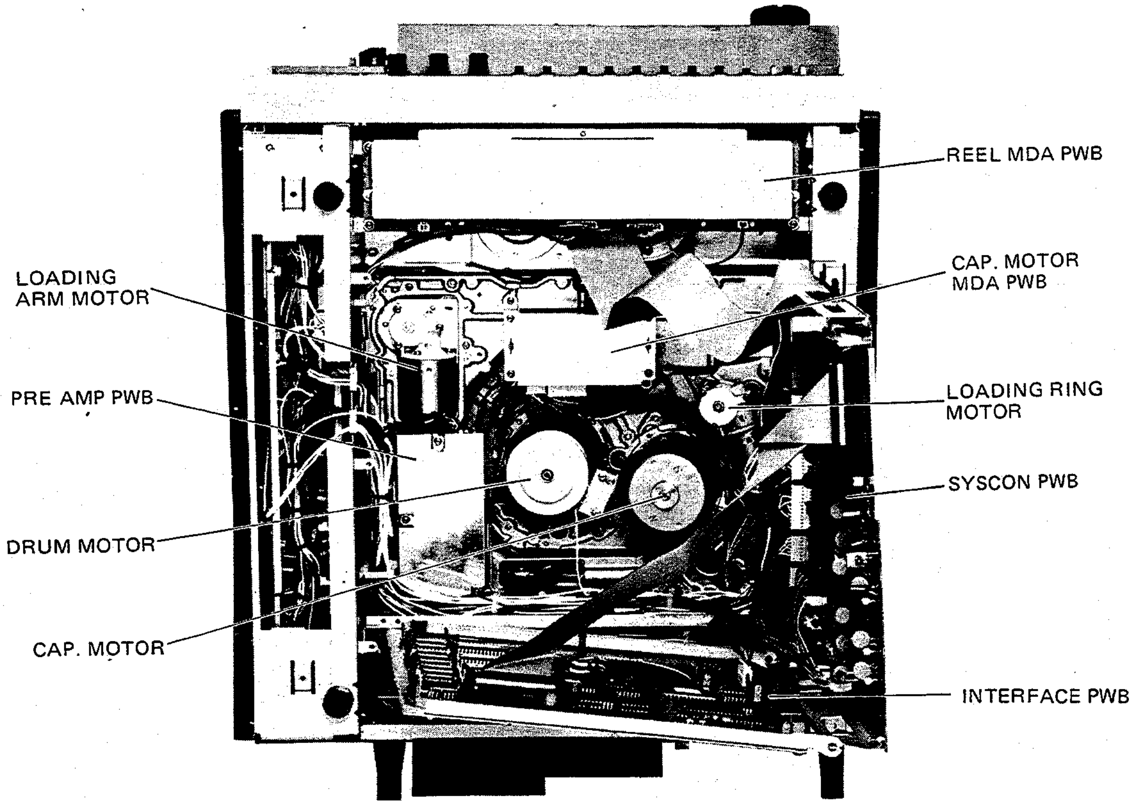

REEL MDA PWB
LOADING ARM MOTOR
CAP. MOTOR MDA PWB
PRE AMP PWB
LOADING RING MOTOR
SYSCON PWB
DRUM MOTOR
CAP. MOTOR
INTERFACE PWB

Fig. 1-9

1.3 REMOVAL OF MAIN P.W. BOARDS

1.3.1 Right side

1. Remove the side cover and the handle cover of the right side.
2. To remove the AUDIO and FUSE boards, remove the two screws Ⓐ and open the top side pivoting the holders.

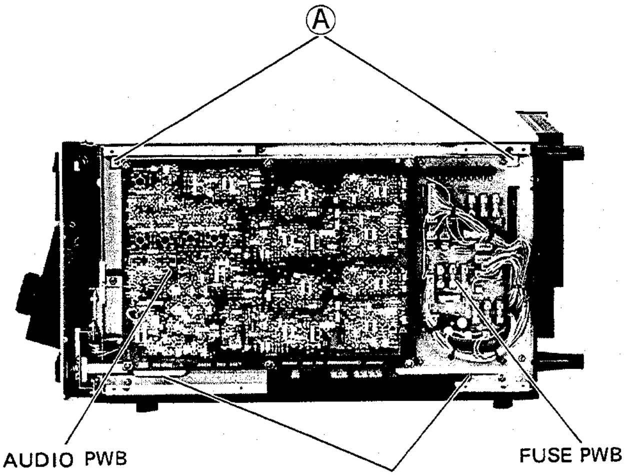


Fig. 1-10

1.3.2 Left side

1. Remove the side cover and the handle cover of the left side.
2. Remove the top cover and, then, remove the rear cover (right side).
3. To remove the Y/C OUT and REEL SERVO boards, remove the screw Ⓑ and raise the terminal bracket to move the whole boards leftwards (in the direction of the rear panel).
4. The removed boards should be placed on the board holders by inserting the board brackets into the slant slits of the holders.
5. To remove the VIDEO REC/PB and PAL CTL boards, remove the screwⒸ first, and raise the terminal bracket to move the whole boards leftwards (in the direction of the rear panel).

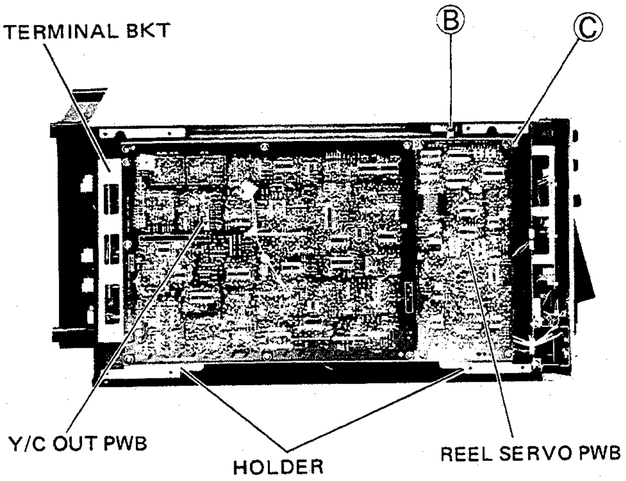


Fig. 1-11

1.3.3 Rear side

1. Remove the rear panelel. (Refer to subsection 1.1.5.)
2. Disconnect the power cable connector.
3. Remove the connector panel. (Refer to subsection 1.1.7.)
4. To remove the AUDIO TRANS board, remove the two screws Ⓓ and move the board leftwards.
5. To remove the 2nd REG board, remove the two screws Ⓔ and move the board leftwards.

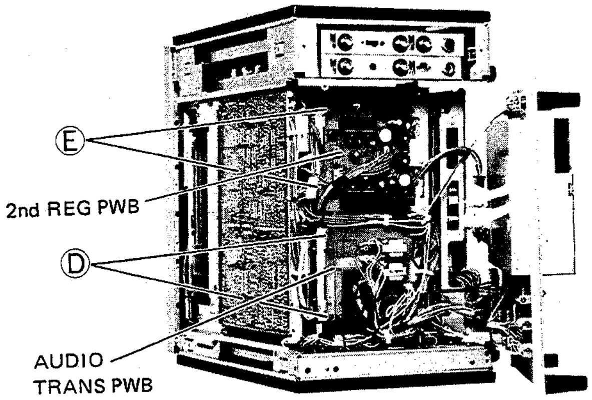


Fig. 1-12

1.3.4 Front side

- Operation unit

1. Disconnect connectors on the front panel.
2. Remove the front panel.
3. Remove the ten screws Ⓕ.
4. Disconnect the Search VR connector, and remove the whole board.
5. For removal of the LED display board, remove the six plastic holders and unsolder five LED's on the right side. (D12, D13, D14, D15, D18)
6. Unsolder soldered thirty-five pins on the operation board, and remove the LED display board.

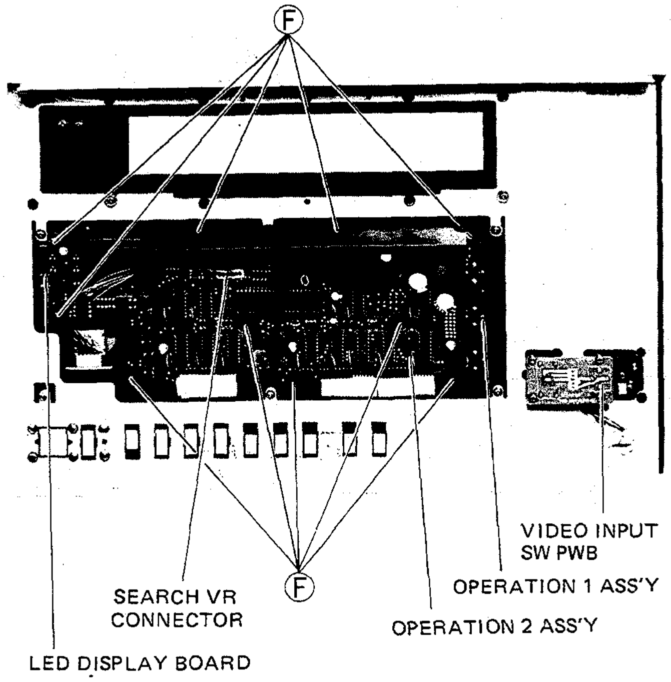

Ⓕ
VIDEO INPUT SW PWB
Ⓕ
SEARCH VR CONNECTOR
OPERATION 1 ASS'Y
OPERATION 2 ASS'Y
LED DISPLAY BOARD

Fig. 1-13

- Mode selector

1. Remove the front panel.
2. Loosen the four screws Ⓖ.
3. Remove the four screws Ⓗ.
4. Remove the two screws Ⓘ securing the power switch.
5. Raise the whole bracket upward and remove it.

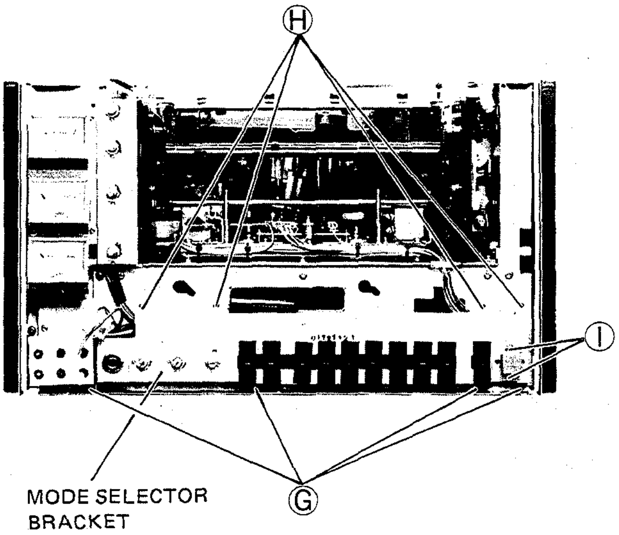
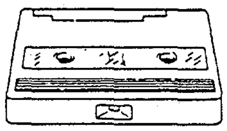
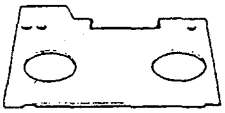
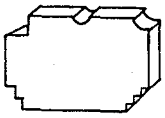
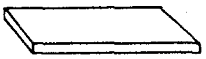
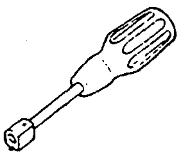

Ⓗ
Ⓘ
MODE SELECTOR BRACKET
Ⓖ

Fig. 1-14

SECTION 2
MECHANISM ADJUSTMENT

- To perform the mechanism adjustment completely, the methods described in this section, following jigs and tools are required. If the adjustment is performed without these jigs, the required precision and performance may not be obtained and the initial performance of the unit may not be maintained.

Alignment tape MO-22HS/MOCE-2HS MORE-S/MOPE-XS	Master plane jig PGJ04001	Height adjusting jig PGJ04002	Incline gauge (parallel plate) PGJ04003	A/C head positioning jig PUJ47351-2
				

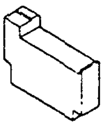
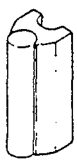
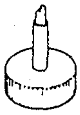
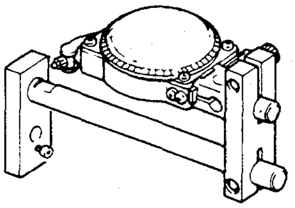
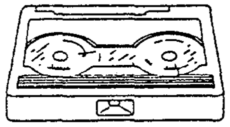
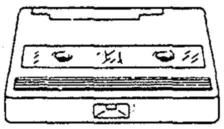
Height jig PUJ43780	V-groove checker PUJ36281	Eccentric pin PUJ46250	Micro Checker PUJ49712-2	Cassette torque meter PUJ42373/PUJ42373R	Standard tape for REC/PB KCS-20K/KCA-60K
					

Table 2-1 Jigs and tools

In addition to the above mentioned jigs and tools, etc., the following tools and measuring equipment such as hexagonal wrenches of 0.9 mm (for 2 mm setscrew), 1.27 mm (for 2.6 mm setscrew), 1.5 mm (for 3 mm setscrew) and 2.4 mm (for 4 mm setscrew), a mirror, general tools, an oscilloscope, a digital voltmeter are required. (For the measuring equipment, refer to the section of "Electrical Adjustment".)

2.1 TAPE RUNNING CHECK

The tape running can be checked by the FM signal waveforms and the tape running appearance from outside, however, the following pole and rollers can be adjusted only by the jigs. They cannot be adjusted by checking the tape running or FM waveforms.

1. 1st supply (1st SUP) guide pole
2. Take-up loading (TU. L.) arm roller
3. Take-up tension (TU. Ten.) roller

All poles and rollers are designed to be at the right angles vertically against to each plane. Never tilt them to prevent trouble or malfunction.

Note: Do not try to re-adjust or transform parts with green screws as they have been precisely adjusted at the factory.

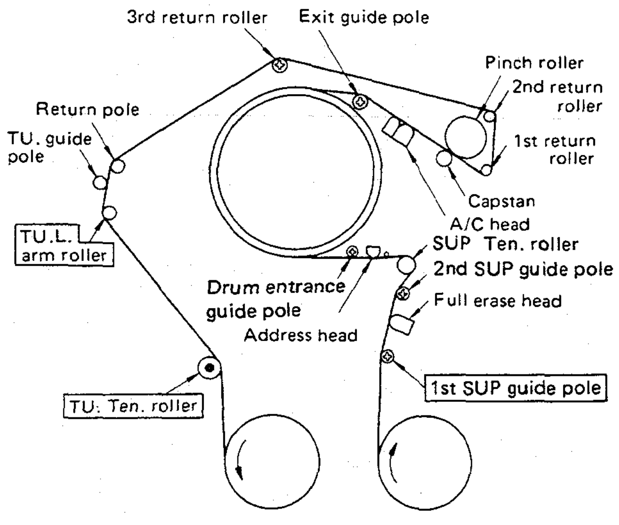

3rd return roller
Exit guide pole
Pinch roller
2nd return roller
Return pole
TU. guide pole
1st return roller
Capstan
A/C head
TU.L. arm roller
SUP Ten. roller
2nd SUP guide pole
Drum entrance guide pole
Full erase head
Address head
1st SUP guide pole
TU. Ten. roller

Fig. 2-1

2.2 MAINTENANCE AND INSPECTION

Maintenance and inspection are important to keep the initial performance and for the protection of tape, the inspection should be performed according to the interval defined on the following table.

2.2.1 Cleaning

Cleaning should be performed every 500 operating hours using a lint-free cloth dampened with alcohol or cleansing solvent.

(1) Video head area
 1) Drum cleaning
 Use "Kimwipes" (trademark of Kimberly-Clark) or equivalent laboratory cleaning tissues, slightly moistened in alcohol, to clean the video head drum (but not the heads themselves). While gently holding the tissue against the drum (about 100 to 150 grams pressure) with one hand, turn the drum with the other hand so that cleaning is performed in a side-to-side motion. Avoid an up-and-down motion, as this may dislodge the video heads.
 2) Video head cleaning
 Use uncoated good-quality office paper (Xerox paper is suggested). Hold a piece of dry (no solvents) paper gently (100 to 120 grams pressure) against the head and turn the drum to perform cleaning.
 3) Dew sensor cleaning
 Use "Kimwipes" or equivalent to gently clean in the direction of the circuit pattern. Only if necessary, moisten the tissue with alcohol. Avoid getting fingerprints etc. on the dew sensor.
 4) After cleaning be sure the unit is thoroughly dry before inserting tape.

(2) Tape transport system
 1) Upper drum (including video heads)
 2) Lower drum
 3) Capstan
 4) Audio/control head
 5) Address head
 6) Full erase head
 7) Poles, rollers and other tape guide materials

(3) Others
 1) Photo transistor (for tape start/end)
 2) Dew sensor
 3) Photo interrupter (for reel FG, cassette-in sensors)
 4) Slip ring (at the center of the drum)
 5) Brush (at the center of the drum)
 6) Belt (for cassette compartment drive)

2.2.2 Servicing schedule for main components

The following chart lists the parts of the unit which should receive periodic servicing at the recommended intervals. The table indicates approximate times when replacement of critical internal parts should be considered, however, in actual usage, these times will greatly vary according to environmental and usage conditions. Routine inspection and maintenance are also important factors that influence equipment life. Note that rubber parts may become aged or deformed after long periods of storage, even if the equipment is not used.

Category	Parts No.	Parts Name	Period of Servicing Schedule (operating hours)							
			500	1000	1500	2000	2500	3000	3500	4000
Head	PRD30035B	Upper drum ass'y	●	●	●	●	●	●	●	●
	PGZ00262B	A/C head ass'y	○	○	○	●	○	○	○	●
	PGZ00196A	AD head ass'y	○	○	○	●	○	○	○	●
	PGZ00257A	Full erase head ass'y	○	○	○	●	○	○	○	●
Motor	PGZ00235C	Capstan motor								●
	PGS20055A	Lower drum ass'y	○	○	○	○	○	○	○	●
	PGZ00209A	Reel motor (TU/SUP)								●
	PUS36063E	Loading ring motor ass'y				●				●
	PU48362-2	Loading arm motor				●				●
	" -2	Cassette compartment drive motor				●				●
Pinch roller	PRD30108A-02	Pinch roller arm ass'y	○	○	○	●	○	○	○	●
Belt	PRD30022-2	Cassette compartment drive belt	○	○	○	●	○	○	○	●
Brush	PRD40513A	Slip ring ass'y	○	○	○	●	○	○	○	●
	PRD40490A	Brush ass'y	○	○	○	●	○	○	○	●
Brake	PRD40299A	Brake band ass'y		○		●		○		●
	PGZ00313	Brake solenoid		○		○		○		●
Photo-coupler	GP-1A01	Photo-coupler (for Reel FG)	○	○	○	○	○	○	○	○
Clutch	PUS46150C	Loading drive gear ass'y				●				●

○ Clean, or replace if necessary. ● Replace.

Table 2-2

2.3 REPLACING OF MAIN PARTS ASSOCIATED WITH CASSETTE

2.3.1 Replacement of cassette compartment

A. When the complete unit is not operating:
1. Remove the top cover.
2. Remove the four screws Ⓐ located outside the cassette compartment.
3. Remove the two screws located on the upper side of the front panel.
4. Remove the Tracking, Audio 1, Audio 2 and Video Level knobs.
5. Hold up the D/C servo PWB and disconnect the connector (51-1) from the compartment.
6. Pull the panel towards you and lift off the compartment just upwards.
7. Perform the reverse procedure to install the replacement compartment.

B. When it is still possible to operate the unit:
1. Remove the top cover and lift up the D/C servo PWB.
2. Turn on the power of the unit and press the cassette sensor by finger or cassette tape. Then, turn off the power of the unit with the compartment drawn inside the unit.
3. Remove the two screws Ⓑ fixing the lid assembly.
4. Disconnect the connector (51-1) and detach the compartment from the unit.
5. Perform the reverse procedure to install the replacement compartment.

Note: Pay attention when reinstall the cassette door, tighten screws Ⓑ after their stoppers and holes are fitted each other.

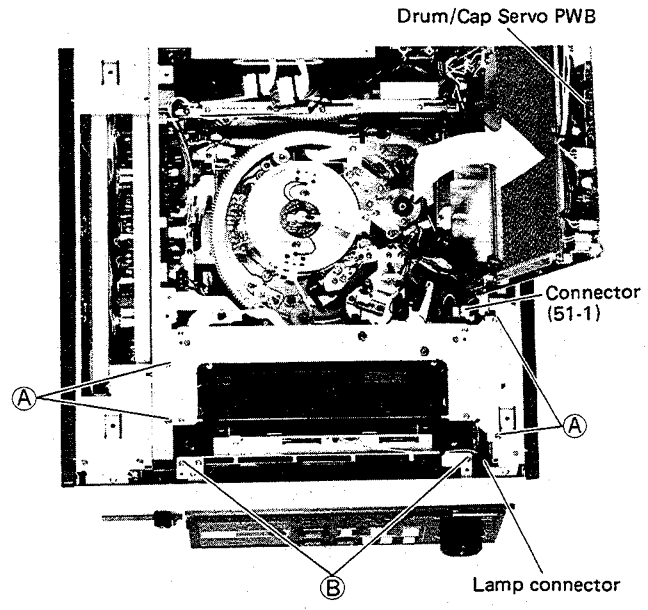


Fig. 2-2

2.3.2 Replacement of the drive motor

1. Remove the cassette compartment. (Refer to foregoing subsection 2.3.1.)
2. Remove the screw Ⓔ and take out the CCI PWB (refer to Fig. 2-3).
3. Unsolder the two motor wires.
4. Remove the three screws Ⓐ and remove the motor together with the bracket.
5. Remove the pulley loosening the setscrew Ⓕ (2.6 mm).
6. Remove the three screws Ⓑ and replace the motor.
7. Perform the reverse procedure to install the replacement motor.
8. Solder the said two motor wires with the red wire connected to the positive motor terminal. Fix the pulley at a position of 2 to 2.5 mm away from the surface of the bracket.
   After that, engage the belt.

2.3.3 Replacement of the drive gears

1. Remove the cassette compartment. (Refer to foregoing subsection 2.3.1.)
2. Remove the retaining ring (E-ring) of the gear Ⓒ and the gear.
3. After replacement of the drive gears, when installing the replacement drive gears, set these right and left drive gears so that they drive the compartment in parallel with each other. Furthermore, in this case, set them so that, when the housing is completely set to the set position, the marking "⇩" of the gear Ⓓ faces the center of the gear Ⓒ.

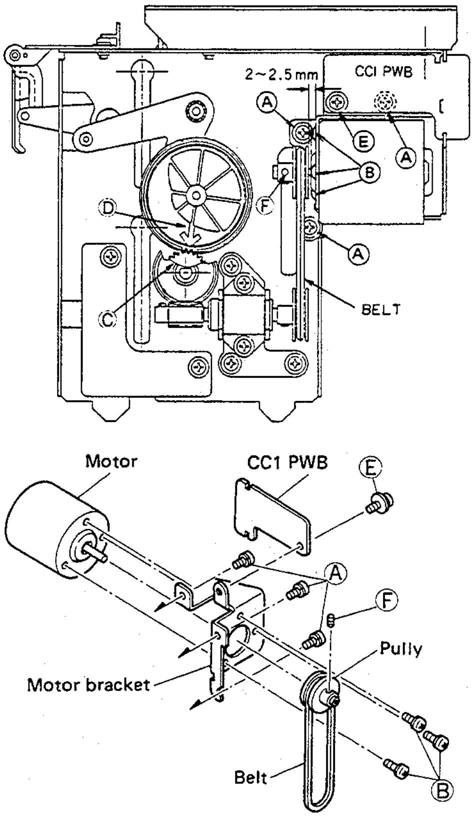


Fig. 2-3

2.3.4 Replacement of cassette-in sensor

Note: Do not adjust the screw Ⓑ cassette sensor's position except when it is necessary.

1. Remove the cassette compartment. (Refer to foregoing sub-section 2.3.1.)
2. Remove the screw Ⓐ together with the board ass'y on which the sensor is fixed.
3. Unsolder the sensor and replace it paying attention not to damage any circuit pattern of the PWB.
4. Solder the replacement sensor and install it.
5. Confirm the position of the sensor. It should turn on when the tip of the sensor lever is 3.0 – 3.5 mm from the end plate. If necessary, adjust it by loosening the screw Ⓑ .

- **By turning ON the cassette drive motor, it is possible to check up the sensor in the ON state.**

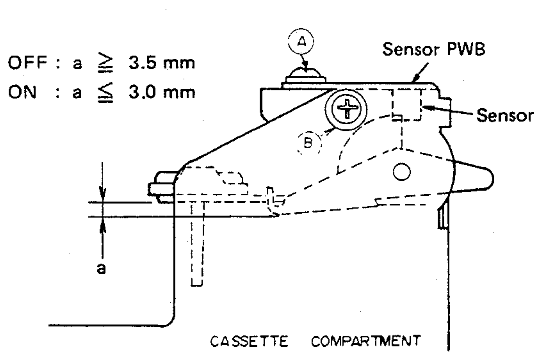


Fig. 2-4

2.3.5 Replacement of lid (cassette door) and its adjustment

- This adjustment is needed for smooth opening/closing action of the lid (cassette door).

1. Remove the top cover.
2. Remove the two screws Ⓐ fixing the lid assembly.
3. Remove the two screws Ⓑ at the left side of the door and replace the door.
4. Press the door bracket in the direction of an arrow so that it is right-angled. Then, set the replacement cassette door so that the clearance is 1.6–2.0 mm at most with the door put aside to the right side.

Note: The clearance changes with temperature. Perform this adjustment at normal temperature.

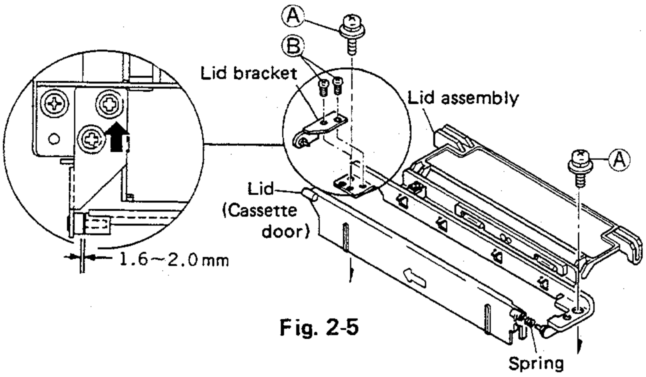


Fig. 2-5

2.3.6 Replacement of reel disks

1. Take out the cassette compartment. (Refer to foregoing sub-section 2.3.1.)
2. Remove the front panel.
3. Loosen the two setscrews (3 mm) of the disk, push the solenoid by hand and draw out the disk paying attention not to damage the brake band. Also do not lose washers under the disk. (Refer to Fig. 2-6.)
4. After replacing the disk, perform the reverse procedure to install the replacement disk.
5. When the disk is put in, release the brake band by pushing the solenoid by hand paying attention not to depress the brake band.
6. Perform the reel disk height adjustment. (Refer to sub-section 2.4.2.)
7. Tighten the setscrews with 5.0 kg-cm torque to secure it.
8. After installation, check that the stroke of the solenoid is 4 mm.
9. Check that the brake band becomes completely free when the brake is released by pressing the solenoid by hand.

2.3.7 Replacement of reel motors

1. Take out the reel disk. (Refer to subsection 2.3.6.)
2. If washers are provided between reel disks and motor shafts, avoid mixing these right and left washers and keep them as they are, because they are used again as they are.
3. Put up the reel motor with the rear panel placed at the downside, remove the bottom cover and open the system control PWB.
4. Disconnect the connector (CN-2 or CN-3) running from the MDA, loosen the three screws fixing the motor and take it out. (Refer to Section 5.2.10- ②,③)
5. After replacing the motor, perform the reverse procedure to install the replacement motor.
6. The three screws should be tightened with equal torque. More, perform the reel disk height adjustment (refer to subsection 2.4.2).

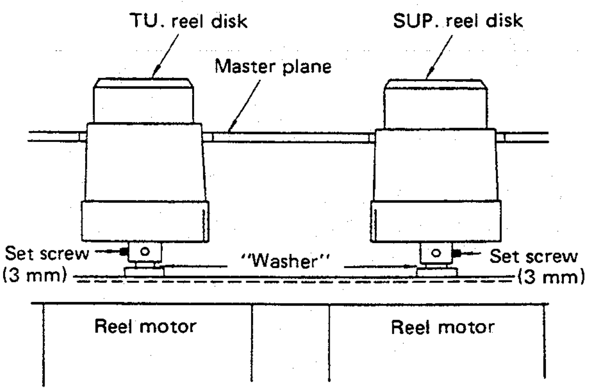


Fig. 2-6

2.3.8 Replacement of brake band and its adjustment

1. Take out the cassette compartment. (Refer to subsection 2.3.1.)
2. Remove the two screws Ⓐ fixing the brake band and replace it.
3. When installing the replacement brake band, first secure the band holder Ⓑ and then the band holder Ⓒ at the center of the hole.

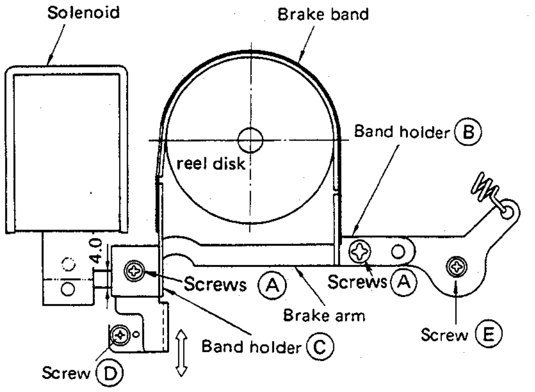


Fig. 2-7

4. After installation, check that the stroke of the solenoid is $4^{+0}_{-0.5}$ mm. If not, loosen the screw Ⓓ and adjust it. After that, tighten this screw and lock it by adhesive agent. In check of the stroke of the solenoid, the width (4 mm) of the lever straddling the solenoid can be utilized.
5. Check that when the brake is released by pressing the solenoid by hand, the brake band becomes completely free.

2.3.9 Replacement of brake solenoid

1. Take out the cassette compartment. (Refer to subsection 2.3.1.)
2. Push out the spring pin from above by means of an M3 x 6 mm screw with a screwdriver.

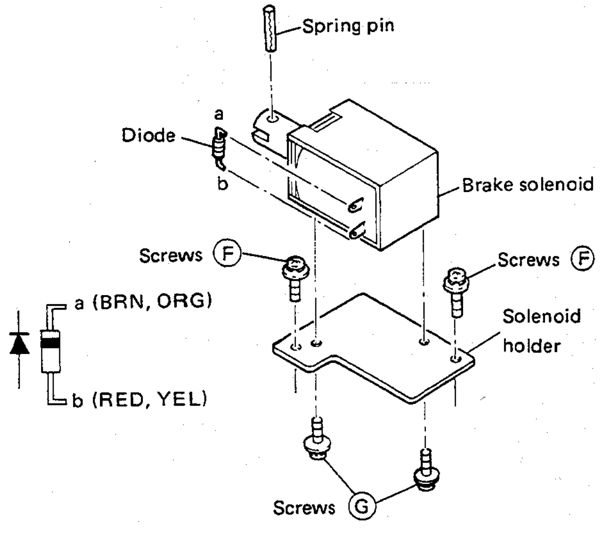


Fig. 2-8(a)

3. After removing the two screws Ⓕ securing the solenoid holder, remove the two screws Ⓖ securing the solenoid and solenoid holder to remove the solenoid.
4. Unsolder the solenoid and replace it. At this time, take care to the diode polarities.
5. Perform the reverse procedure to install the replacement solenoid. (Refer to Fig. 2-8(a).)
6. After installation, check that the stroke of the solenoid is $4^{+0}_{-0.5}$ mm.
7. After the above adjustment, confirm that the brake becomes free when the solenoid is pushed by hand.

2.3.10 Removal of FG PWB and replacement of photo-interrupter

1. Take out the cassette compartment. (Refer to subsection 2.3.1.)
2. Remove the front panel. (Refer to subsection 1.1.3.)
3. Remove the reel disks. (Refer to subsection 2.3.6.)
4. Disconnect the connectors (CN-1, CN-2 and CN-3) of the FG board.
5. Remove the two screws Ⓗ from the photointerrupter.
6. Remove the two screws Ⓐ holding the brake band assemblies in place.
7. Remove one of the springs attached to the brake arms.
8. Lift up the FG board between the two brake arms and remove it.
9. For reassembly, reverse the above procedure.
10. After completion of the above, press the solenoid with your hand to confirm that the reel is completely free and the stroke of the solenoid is $4^{+0}_{-0.5}$ mm. Also check that the reel and the photo-interrupter do not contact each other.

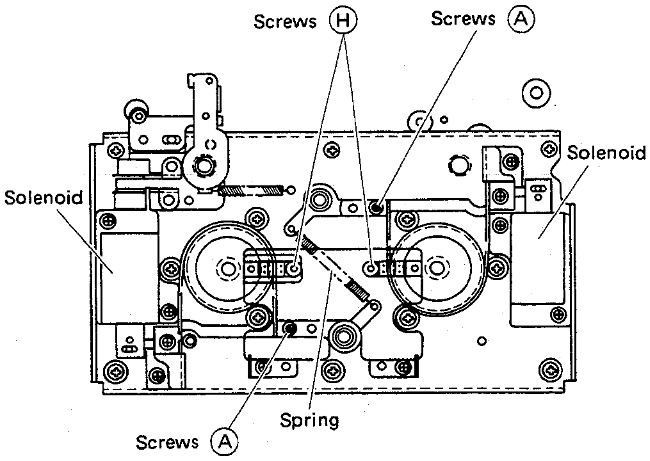


Fig. 2-8(b)

2.3.11 Replacement of REC (record) safety switch

1. Remove the cassette compartment. (Refer to subsection 2.3.1.)
2. Remove the screw Ⓐ fixing the switch bracket.
3. After unsoldering, remove the two screws Ⓑ securing the REC safety switch.
4. After replacing the switch, perform the above procedure in the reverse order.
5. Confirm that the REC safety switch turns ON for detection at the position of 0.5 ± 0.5 mm above the master plane jig.

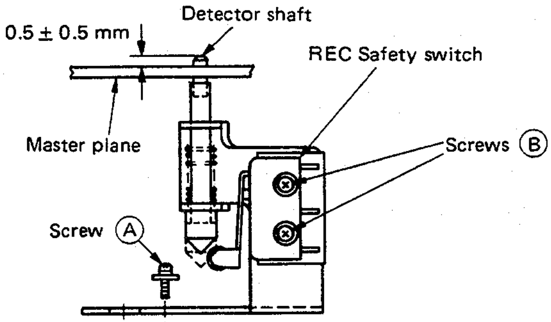


Fig. 2-9

2.3.12 Slip ring assembly and brush assembly

1. Remove the top cover.
2. Lift up the drum servo board.
3. Remove the screw Ⓐ securing the brush assembly to remove it.
4. Loosen the setscrew (3 mm) and draw out the slip ring assembly.

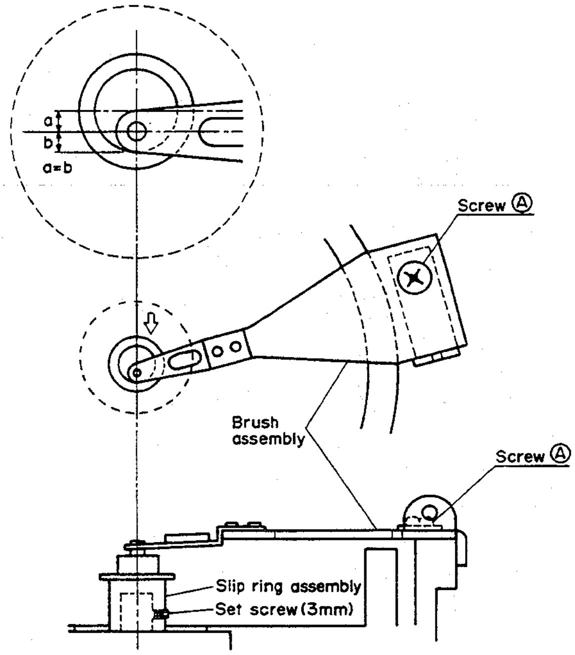


Fig. 2-10

5. After replacing the slip ring and brush assemblies, perform the above procedure in the reverse order.
6. Adjust the contact point of the brush so that it contacts the center of the slip ring at the middle of the arrow-marked direction along the edge, and tighten the screw so that the brush assembly is not shaky.

2.3.13 Upper drum

1. Remove the brush ass'y. (Refer to subsection 2.3.12, steps 1 through 3.)
2. Unsolder the four wires (CH1, CH2) of the video head to disconnect them from the board in the center of the drum.

Wire Color			
CH1-1	CH1-3	CH2-2	CH2-4
Black	Blue	Black	Blue

Table 2-2

3. Remove the two screws (colored in blue) securing the drum to remove it.
4. Before attaching a new drum, clean the both surfaces (upper and lower) to remove dust.
5. Tighten the two screws temporarily, and attach a micro-checker whose fine adjustment screw has been fully loosened as shown in Fig. 2-11(a).
6. Confirming that the drum eccentricity is less than 4 μm by the microchecker, tighten the two screws equally.

Note: For usage of the microchecker, refer to Fig. 2-11(b) and the description.

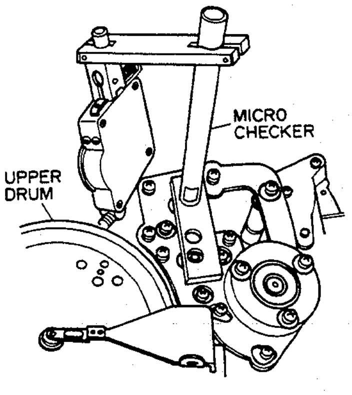


Fig. 2-11 (a)

7. Performing the following checks and adjustments.
   1) Slip ring ass'y and brush ass'y (see section 2.3.12)
   2) Tape transport (see section 2.7.1 to 2.7.7)
   3) Video head relative height (see section 2.7.8)
   4) Video head 180° divisions (see section 2.7.9)
   5) Switching point (see section 3.3.10 to 3.3.12)
   6) Sub tracking (see section 3.3.16)
   7) Head resonance frequency (see section 3.4.25)
   8) Head resonance Q (see section 3.4.26)
   9) PB balance (see section 3.4.28)
   10) RF EQ (see section 3.4.29)
   11) REC frequency response (see section 3.4.31)
   12) REC FM level (see section 3.4.32)
   13) REC color level (see section 3.4.33)

8. After the above adjustments have been completed, perform color bar signal record and playback. Then, confirm that slanting beat lines do not especially appear on the cyan part of the color bar during the PLAY or STILL mode.
   When this occurs, perform the following adjustments:
   1) MOD balance (see section 3.4.5)
   2) LIM BAL & CAL BAL (see section 3.4.27)
   3) Noise balance & noise level (see section 3.4.75)
   4) HF noise level (see section 3.4.76)
   5) Local OSC. ADJ. (see section 3.4.13)
   6) Demagnetize video heads.
   If the beat line still remains, change the wiring polarity on the drum terminal PWB (yellow and red or brown and orange), then check it again.

IMPORTANT:
Micro-checker is a test jig for measuring eccentricity of the upper drum.
When using this jig, observe the following precautions.

- As the instrument is extremely precise, use special care not to drop it or subject to strong vibration.
- Do not apply strong force to the test probe.
- The position and direction of the holder have been preset. Do not readjust or disassemble the instrument.
- The outer frame of the scale can be turned about 10 scale divisions in either direction. Do not turn it forcibly (force greater than 300 g-cm).
- Use care that the jig does not contact the video heads.
- Before mounting, turn the fine adjust knob counter clockwise (to where the spring tension is no longer felt).
- When mounting, observe that the test probe movement direction is toward the center portion of the upper drum.
- If an abrasive sound is heard during measurement, check for dust or grit adhering to the test probe or drum face.

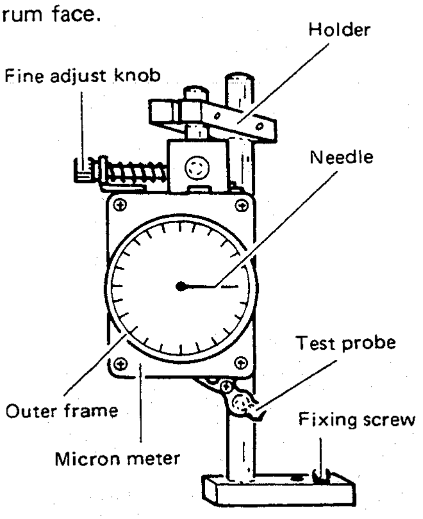


Fig. 2-11 (b) Micro-checker

2.3.14 Lower drum assembly

Note: Since the drum motor and lower drum are assembled parts, replace them together.

1. Lift up the drum servo PWB.
2. Remove the brush ass'y. (Refer to subsection 2.3.12.)
3. Remove the upper drum. (Refer to subsection 2.3.13.)
4. Unsolder the four screws (CH-1 and CH-2) on the drum terminal PWB.

Wire Color			
CH1-4	CH1-2	CH2-6	CH2-8
Brown	Orange	Yellow	Red

Table 2-3

5. Place the unit on its rear edges and disconnect the drum motor connector.
6. Loosen the two setscrews (3 mm) to draw out the dynamic damper assembly.
   As the setscrews securing the dynamic damper assembly are not seen ordinarily, use a mirror to confirm the setscrew's positions at this working. (See Fig. 2-12(a).)
7. Unsolder the pickup head.
8. Loosen the three screws securing the lower drum from the bottom side, and lift up the drum assembly to the opposite side to release it from the screws for removal. At this time, pay careful attention to the drum assembly so that it does not contact the A/C head assembly, shield plates, etc.
9. After replacing the lower drum assembly, secure it in accordance with the reverse order of the above procedure.
10. When securing the lower drum assembly with the screws, make sure that it must be well-balanced. Tighten it securely with 12 kg-cm torque.

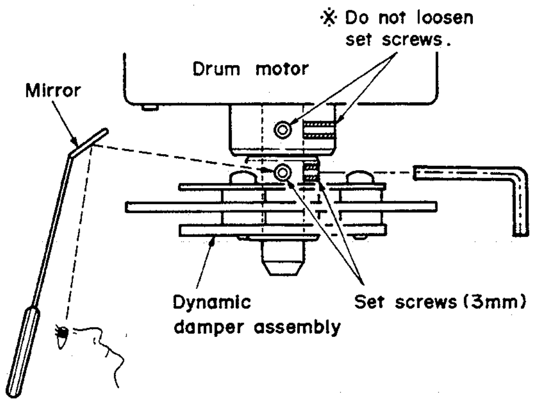


Fig. 2-12 (a)

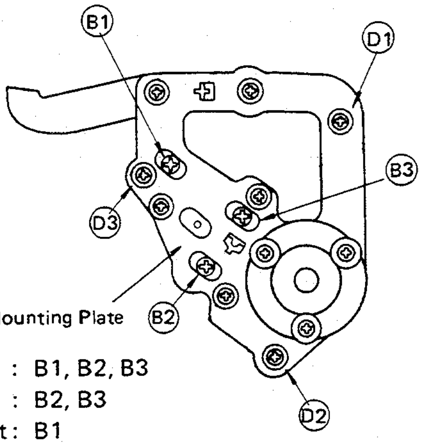
11. Performing the following checks and adjustments:
    1) Slip ring ass'y and brush ass'y (see section 2.3.12)
    2) Drum pulse pickup head positioning (see section 2.3.17)
    3) Tape transport (see section 2.7.1 to 2.7.7)
    4) Video head relative height (see section 2.7.8)
    5) Video head 180° divisions (see section 2.7.9)

   6) Switching point (see section 3.3.10 to 3.3.12)
   7) Sub tracking (see section 3.3.16)
   8) Head resonance frequency (see section 3.4.25)
   9) Head resonance Q (see section 3.4.26)
   10) PB balance (see section 3.4.28)
   11) RF EQ (see section 3.4.29)
   12) REC frequency characteristics (see section 3.4.31)
   13) REC FM level (see section 3.4.32)
   14) REC color level (see section 3.4.33)

12. After the above adjustments have been completed, perform color bar signal record and playback. Then, confirm that slanting beat lines do not especially appear on the cyan part of the color bar during the PLAY or STILL mode.
    When this occurs, perform the adjustments described in the item 7 of the previous section 2.3.13, again.

2.3.15 Audio/control head ass'y

1. Remove the three screws (D1), (D2), (D3) and pull up the mounting plate.
2. Disconnect the sockets (P711, P712 and P713) and take out the mounting plate.
3. Unsolder the A/C head PWB. Then, pay attention to the springs and collars, loosen the three screws (B1), (B2), (B3), take out the A/C head ass'y and replace it.
4. After replacing the head, temporarily adjust the space between the A/C head base and the mounting plate is 6 mm by turning the three screws (B1), (B2), (B3).
5. Perform the procedure reverse to above.
6. Execute the following adjustments:
   1) Tape transport (see section 2.7.1 to 2.7.7)
   2) Audio/control head height (see section 2.7.10)
   3) Audio/control head azimuth (see section 2.7.11)
   4) CTL head positioning (see section 2.7.12)



Height adjustment : B1, B2, B3
Tilt adjustment : B2, B3
Azimuth adjustment : B1

Fig. 2-12 (b)

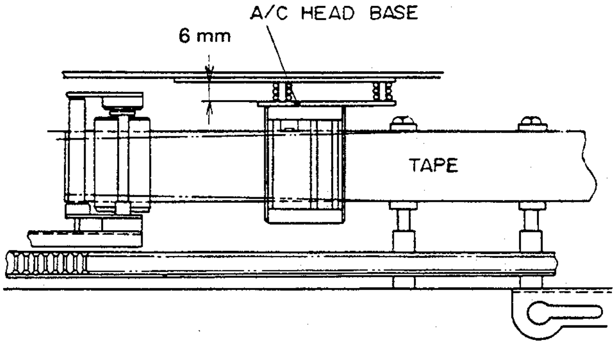


Fig. 2-12 (c)

2.3.16 Address head

Note: The screw Ⓕ and Ⓖ are for adjusting the Address head position. See section 2.7.17

1. The Address head is mounted by the five screws Ⓐ, Ⓑ, Ⓒ, Ⓓ and Ⓔ. To take out the Address head, remove the screws Ⓐ, Ⓑ and Ⓒ.
2. When mounting it again after replacement, adjust the screws Ⓐ, Ⓑ and Ⓒ tentatively so that there is 3.5 mm space from the head base.
3. Adjust the screw Ⓒ, two setscrews (3 mm) Ⓓ, Ⓔ so that both the right side and face of the head come in parallel with the right guide pole. At this adjustment, do not tighten the screw Ⓐ but press the base with the spring Ⓑ.
4. Connect an oscilloscope's CH1 probe to D.PULSE terminal and CH2 probe to TP3 (TIME CODE board); playing back the alignment tape MOC-2S and adjusting triggering point, confirm that the observed waveform is as shown in Fig. 2-13(b).

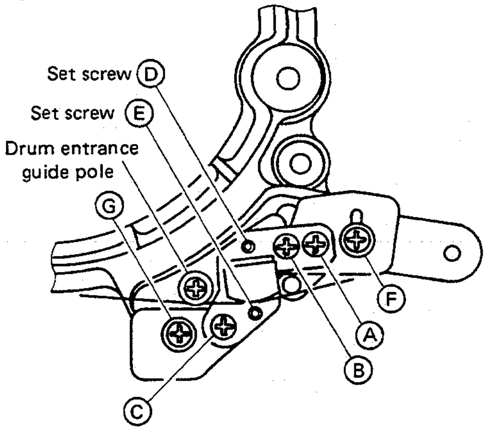


Fig. 2-13(a)

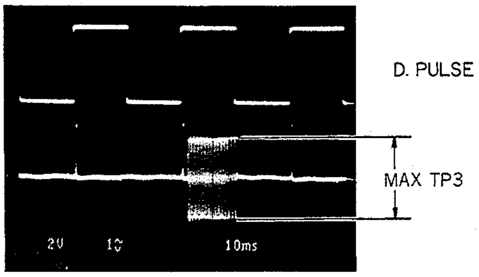


Fig. 2-13(b)

5. Adjust the screw Ⓒ, setscrews (3 mm) Ⓓ, Ⓔ so that PB output level of the observed sine wave is maximized.
6. Check by the parallel check jig (PGJ04003) that the head is not slanted forwards and backwards.
7. Repeatedly perform steps 5 and 6 until their accompanying requirements are both satisfied.
8. Monitoring P.B. output level, tighten the screws Ⓐ and Ⓒ with 1 kg-cm torque to secure it.
9. Execute the tape transport adjustment (section 2.7).

2.3.17 Drum pulse pickup head

1. Tighten the three screws Ⓐ equally so that the space between the head and the motor magnet is 0.3–0.4 mm.
2. Set for the play mode and confirm that the head output voltage at TP65 (D/C SERVO E7) is ±1.2 V ± 0.1 V. If not, adjust the three screws Ⓐ.

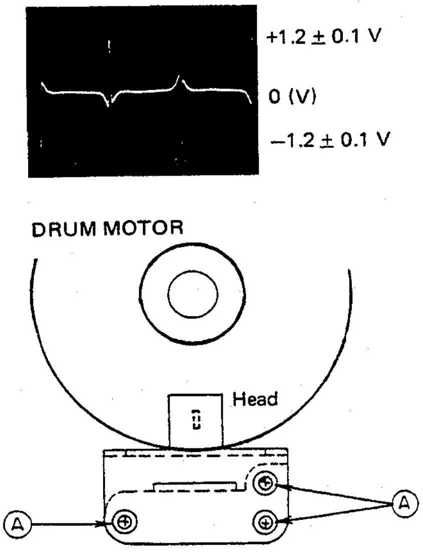


Fig. 2-14

2.3.18 Capstan motor

Note: The capstan motor ass'y (PGZ00235C) consists of a motor (PGZ00235-003) and an MDA (motor drive amplifier) (PGZ00235-002).

1. Remove the mounting plate in the same manner as the A/C head ass'y (Refer to section 2.3.15).
2. Place the unit on its rear edges and loosen four screws fixing the motor. (Refer to Section 5.2.8- (105) and Section 5.2.9- (129)).
3. Allow the wire leading from the MDA to the motor and the connector to hang free.
4. Lift up the motor from the bottom. Remove the four screws, then remove the motor.
5. After changing the motor, uniformly tighten the four screws.

2.3.19 Full erase head

1. When replacing the full erase head, remove it from the mounting plate after removing the screws Ⓐ and Ⓑ.
2. The screw Ⓐ is used for fixing the head, not for adjustment. Tighten it securely with 6 kg-cm torque.
3. Adjust the setscrew so that the head stands exactly vertically. Then, tighten the screw Ⓑ with 2 kg-cm torque and secure the head by the setscrew (3 mm).
4. Using the parallel check jig (PGJ04003), check that the head is in parallel with the two guide poles (1st and 2nd sup. guide poles).
5. Performing the tape transport adjustment (see sect. 2.7).

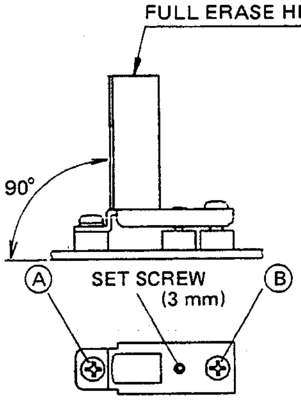


Fig. 2-15

2.3.20 Pinch roller arm ass'y

1. Short pins 1 and 2 of the connector (51-1) of the cassette compartment and turn on the power switch. In this condition, the CPU operates as if a cassette is loaded.
2. If the take-up and supply tape sensors are covered by hand, the loading operation starts. When the pinch roller comes close to the take-up guide pole, turn off the power switch.
3. Paying attention not to drop the E-ring Ⓑ or spring Ⓐ inside the chassis, remove the pinch roller ass'y, and replace it.
4. After replacement, turn on the power switch and check that the loading ring returns to its original state.
5. Set for the loading mode again and turn off the power switch as the pinch roller moves to the loading end position.
   At this time, confirm that the space between the pinch roller and capstan is 0.5–1 mm. If it's not correct, then, you must reposition the pinch roller or release spring rod to achieve the correct spacing.
6. Execute the following adjustments:
   1) Pinch roller perpendicularity (see section 2.4.3)
   2) Loading end setting (see section 2.4.6)
   3) Reverse (REV) tape transport (see section 2.7.7)

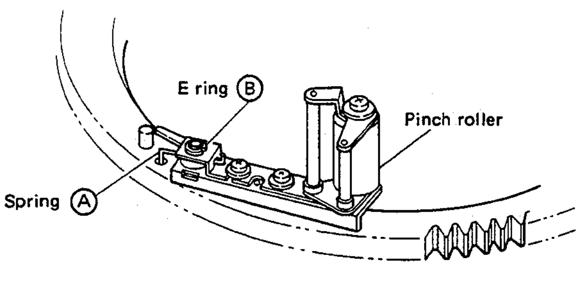
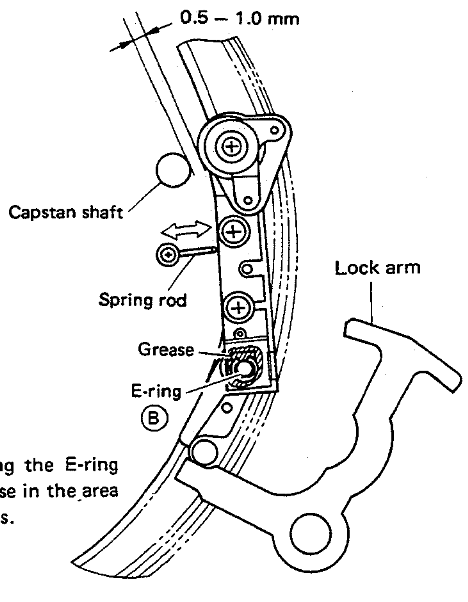


Fig. 2-16 (a)



Note:
Prior to setting the E-ring Ⓑ, apply grease in the area of oblique lines.

Fig. 2-16 (b)

2.3.21 Loading the ring drive motor

Note: The precision of the clutch torque is very important in the assembly of the ring drive gear. For this reason, do not disassemble it.

*When the set is still possible to operate:

1. To remove the ring drive gear, stand the set so that the rear panel is at the bottom and remove the bottom cover.
2. Open the system control board and note the position of a set screw of the ring drive gear.
3. Short pin 1 (yellow) and pin 2 (gray) of cassette compartment connector (51 – 1), then turn the power switch ON to start rotation of the drive motor.
4. From the bottom of the main deck, insert a 1.5 mm hexagonal wrench, then, when the setscrew rotates toward you, turn the power off and loosen the setscrew.
5. Remove the lock arm with the E-ring.
6. Remove the two wires soldered to the motor.
7. Loosen the 3 screws holding the motor housing in place, then replace it.
8. To make work easier when fixing the ring drive gear in place, face the setscrew toward the front panel where you can see. Also, in attaching the drive gear, position it 1 mm below the surface of the loading ring gear so that it does not hit the lock arm and the said 3 screws.
   (Refer to Section 5.2.8- (91) , (92) , (102) and (104)).

*When the unit is not operating:

1. In this instance, the drive gear must be disassembled to remove it. Assembly part (PUS46150C) must be changed along with the motor.
2. First, remove the lock arm and the E-ring.
3. Remove the E-ring on top of the ring drive gear and take out the clutch disk, the felt rings, the gear and the spring.
4. Remove solderings on the motor terminal, then loosen the 3 screws and remove the motor.
5. After changing the motor, when replacing the ring drive gear assembly, make sure the setscrew faces the front panel so that the hexagonal wrench can get at it easily.
6. When tightening the setscrew, position it 1 mm below the surface of the loading ring gear so that it does not hit the lock arm and the said 3 screws.

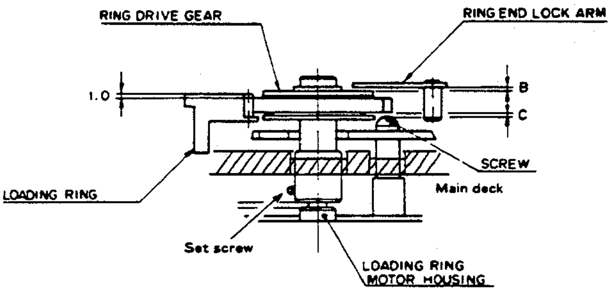


Fig. 2-17

2.3.22 Take-up loading arm drive motor

1. Remove the cassette compartment first, and remove the E-ring Ⓒ on the arm. Release the two rollers from the shaft by hand, then pull out the arm.
2. Short pins 1 and 2 of the connector (51-1) of the cassette compartment and turn on the power switch. In this condition, the CPU operates as if a cassette is loaded.
3. Turn on the power switch, then the drive gear will rotate to come off the other gear drives supply tension arm.
4. Turn off the switch. Loosen the three screws Ⓐ fixing the motor ass'y and replace it.
5. After the replacement, install the loading arm so that its gear engages with the motor ass'y's gear, then adjust the distance between the two gears and fix it at a position at which the two gears engage by 90% gearing, namely there is a 1—2 mm gap at the edge of the arm. For the adjustment, the hole Ⓑ is usable for motor positioning by use of a screwdriver.
6. When the power is turned on again, the motor drives the arm to the unloading end position.
7. Install the E-ring Ⓒ. (Refer to Section 5.2.7 -(63), (94) and (99)).

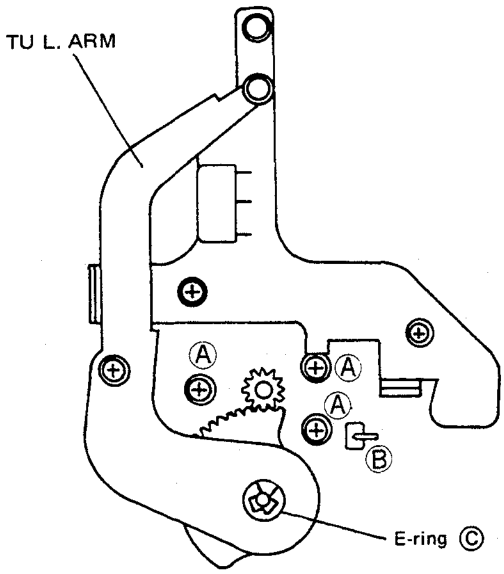


Fig. 2-18

2.4 PRIMARY ADJUSTMENT OF TAPE RUNNING SYSTEM

2.4.1 Stop ring height

When the take-up tension arm becomes unstable with the master plane jig attached or when the take-up tension arm is replaced, it is necessary to adjust the stop ring height.

1. Set the master plane jig on the sub-deck and push the stop ring fully upwards until it contacts the jig.
2. Temporarily fix the stop ring and seek for the position that the master plane jig is stable with every point of four.
3. If the jig is stable, tighten the setscrews (3 mm) .

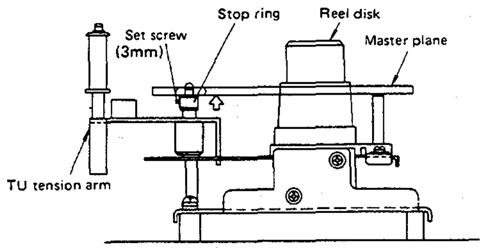


Fig. 2-19

2.4.2 Reel disk height

The height of a reel disk is adjusted by the three kinds of washers to be set around the motor shaft.
Accordingly, the reel disk cannot be fixed on the way of the motor shaft.

1. The master planes jig and the height gauge jig (PGJ-04002) are used in check of the reel disk height. When setting the master plane, it is necessary to remove the protective plate of the tape end sensor and retighten the left screw.
   The reel disk height is over 1.8 mm and under 2.0 mm on the master plane at the supply side, while over 3.0 mm and under 3.2 mm at the take-up side.
2. If the reel disk height is not appropriate to proper operation, remove the setscrew (3 mm) of that reel disk and add a suitable washer or remove for adjusting the height.
3. Tighten the setscrew with 5.0 kg-cm torque.

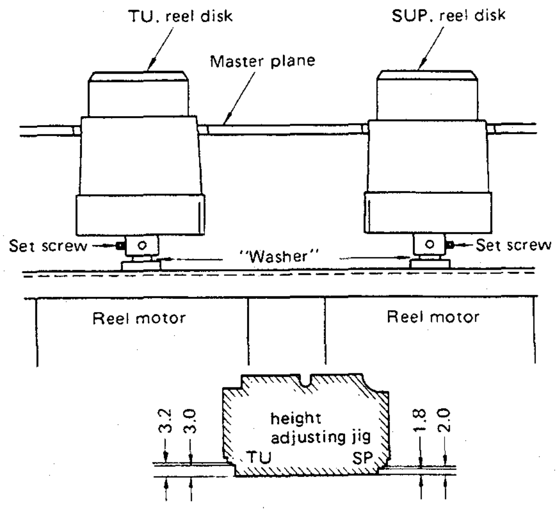


Fig. 2-20

2.4.3 Pinch roller perpendicularity

1. Loosen the two screws ⓐ, and use care not to over loosen it.
2. Place a height adjustment jig (PGJ04002) on the loading ring and set the jig beside a pinch roller.
3. Adjust the position of a pinch roller arm assembly using an A/C head positioning jig (PUJ47351-2) so that the clearance are A = B as shown in Fig. 2-21.
4. While using care not to bend the pinch roller arm assembly at the two screws ⓐ are tightened.
5. Execute the following adjustments:
   1) Loading end setting (see section 2.4.6)
   2) Reverse (REV) tape transport (see section 2.7.7)
   3) Check-up of tape damage at loading.

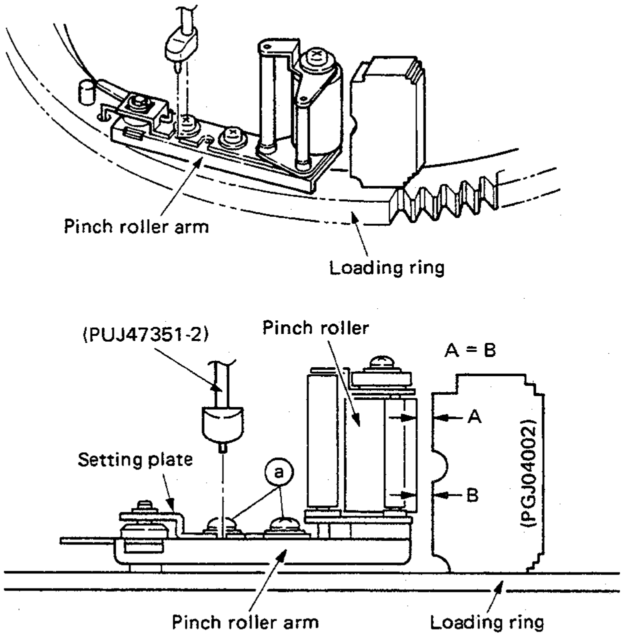

Pinch roller arm
Loading ring
(PUJ47351-2)
Pinch roller
A = B
A
B
Setting plate
a
(PGJ04002)
Pinch roller arm
Loading ring

Fig. 2-21

2.4.4 Pinch roller pressure plate position

1. Set the V-groove checker (PUJ36281) to the capstan shaft and set the V-grooves of the lower pressure plate to the 12 mm dia. part.
2. Adjust the position of the upper pressure plate by loosening the two socket screws so that when the plunger section is pressed by hand, the both edges of V-groove of the upper pressure plate come in contact with the 12 mm dia. part at the same time.
3. After adjustment, tighten these two socket screws with 8–10 kg-cm torque.

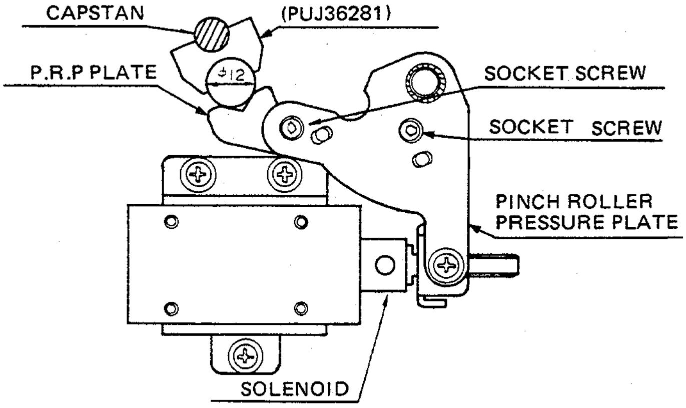

CAPSTAN
(PUJ36281)
P.R.P PLATE
ϕ12
SOCKET SCREW
SOCKET SCREW
PINCH ROLLER PRESSURE PLATE
SOLENOID

Fig. 2-22

2.4.5 Pinch roller solenoid position

1. With a tape loaded, put the unit into the play mode where in the pinch roller presses against the capstan.
2. In this situation, adjust the position of the pinch roller solenoid by loosening its three fixing screws Ⓔ so that the space between the solenoid rod and the plate attached to the pressure plate is 0.5 mm. (See Fig. 2-23.)
3. Put the unit into the stop mode. This time, press the solenoid by finger and release it gradually from finger pressure.
   At this time, check that the solenoid returns completely and the microswitch turns on.

2.4.6 Loading end setting

1. With the loading ring at the loading end, put the pinch roller into the state in which it is pressed against the capstan and turn off the power. (Refer to sect. 2.3.20.)
2. Check that the pinch roller is pressed by the V-groove section of the pinch roller pressure palte uniformly.
3. At this time, adjust the position of the end switch plate so that the loading end switch Ⓑ is kept in "ON" state, and then tighten the screws Ⓓ.
4. Confirm that the unloading end switch Ⓒ is turned ON at loading end.
5. Move the pinch roller to the center of the loading ring.
6. Swinging the lock arm right and left, confirm that it is locked at the point where the tip of the microswitch's leaf reaches over 0.5 mm deeper than the switch's operation start point (clicking position). Also confirm that the lock arm is positioned at the center of the microswitch when it stands still.
7. Confirm the adjustments of the above items 3 through 6. If the switch is not turned on or there is no free scope for the stroke, re-adjust the positions of the microswitches Ⓑ and Ⓒ by moving them to and fro.

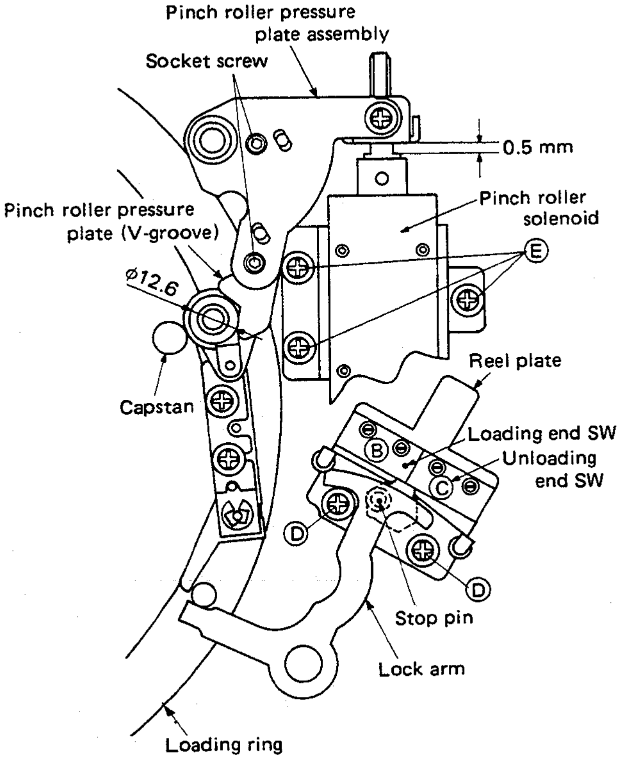

Pinch roller pressure plate assembly
Socket screw
0.5 mm
Pinch roller solenoid
Pinch roller pressure plate (V-groove)
Ⓔ
ø12.6
Capstan
Reel plate
Loading end SW
Unloading end SW
Ⓑ
Ⓒ
Ⓓ
Ⓓ
Stop pin
Lock arm
Loading ring

Fig. 2-23

2.4.7 Pinch roller arm unloading position

1. Put the unit into the unloading mode.
2. Set the master plane jig and adjust the position of the end set roller by loosening the screws Ⓐ and Ⓑ so that the space between the both is 0–0.5 mm.

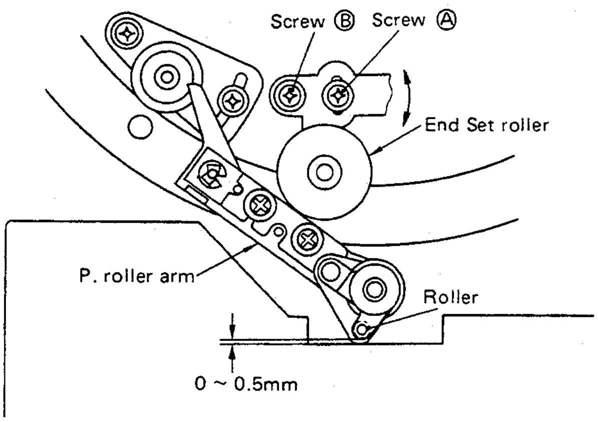

Screw Ⓑ
Screw Ⓐ
End Set roller
P. roller arm
Roller
0 ~ 0.5mm

Fig. 2-24

2.4.8 Height/slant angle adjustment of poles and rollers

No.	Parts Name	Adjustment	Jigs, etc.
1.	1st SUP. Guide Pole	Adjust the screw so that the height of upper flange is 36.5 mm above the supply plate.	PUJ43780
2.	2nd SUP. Guide Pole	1. Adjust the screw so that the height of upper flange is 36.5 mm above the supply plate. 2. Obtain an FM waveform by controlling the tape from the bottom while confirming tape running.	PUJ43780
3.	SUP. Tension Roller	1. Adjust the upper flange height by using the jig as shown in the figure. Next, adjust the lower flange to the thickness of the jig after loosening the setscrew, then tighten the setscrew. 2. Adjust the upper screw for controlling the tape from the top to obtain an FM waveform while confirming tape running.	PGJ04001 PGJ04002 MO-22HS (Stairstep)
4.	Drum Ent. GUID POLE	After adjusting tape running in 2. and 3. above, adjust the roller height so that the upper flange just comes in line with the upper edge of the tape. At this time, avoid any effects on the FM pattern, then tighten the setscrew.	MO-22HS (Stairstep)
5.	Exit Guide Pole	Obtain an FM pattern by controlling the tape from the top while confirming tape running.	MO-22HS (Stairstep)
6.	3rd Return Roller	1. Set the roller's lower flange 24 mm above the reference plane of the main deck. 2. Play back MO-22HS. Then adjust the height so that the control pulse (TP7 D/C SERVO PWB) level does not change during FWD (X10) and REV (X–10).	PGJ04002 MO-22HS
7.	T.U. Loading Arm Roller	Adjust it by changing numbers of washers engaged around the loading arm shaft so that the roller's bottom is 5 mm above the master plane jig.	PGJ04001 PGJ04002
8.	Return Pole	1. Play back a tape and confirm that the top of the return pole is higher 1 mm or more than the top edge of the tape. 2. Adjust the slant angle of the pole so that a running tape is tensioned equal by its top and bottom edges around the 3rd return roller also it's free from wrinkling due to the flanges of T.U.L. arm roller and the T.U. tension roller.	–
9.	T.U. Tension Roller	1. Adjust it so that its upper flange is 24 mm above the master plane jig. 2. Fix it as its lower flange is positioned at the same height as the thickness of the jig.	PGJ04001 PGJ04002

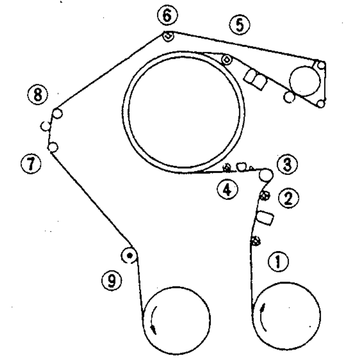


Fig. 2-25

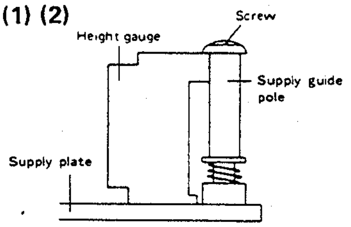

(1) (2)
Screw
Height gauge
Supply guide pole
Supply plate

Fig. 2-26

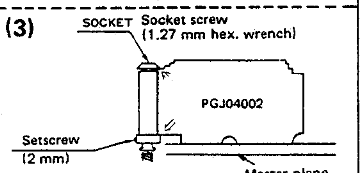

(3)
SOCKET
Socket screw (1.27 mm hex. wrench)
PGJ04002
Setscrew (2 mm)

Fig. 2-27 Master plane (PGJ04001)

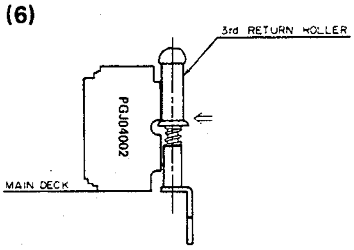
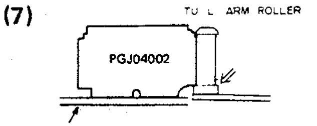
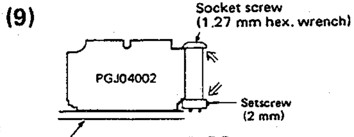

(6)
3rd RETURN ROLLER
PGJ04002
MAIN DECK

Fig. 2-28


(7)
TU L ARM ROLLER
PGJ04002

Master plane (PGJ04001) Fig. 2-29


(9)
Socket screw (1.27 mm hex. wrench)
PGJ04002
Setscrew (2 mm)

Master plane (PGJ04001) Fig. 2-30

*For the convenience, this figure indicates basic pole and roller positions when an FM pattern is obtained during tape running, it can be used with referring to 2.4.8 Height/slant angle adjustment of poles and rollers. Marks (🠉) show the tape controling.

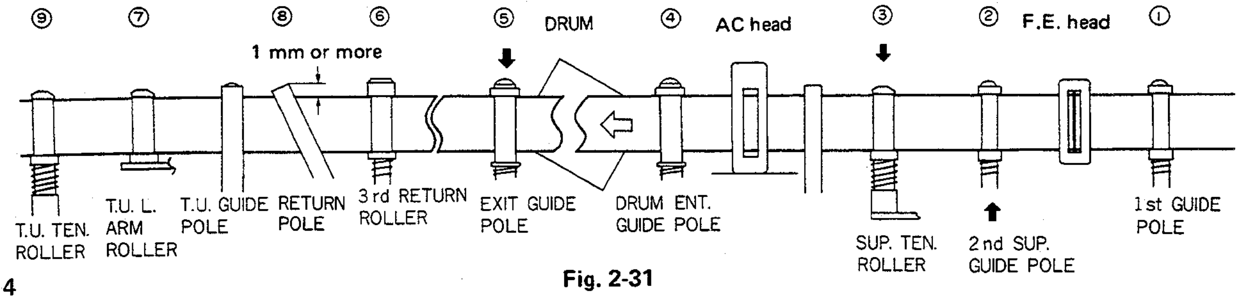

⑨
⑦
⑧
⑥
⑤
DRUM
④
AC head
③
②
F.E. head
①
1 mm or more
T.U. TEN. ROLLER
T.U. L. ARM ROLLER
T.U. GUIDE POLE
RETURN POLE
3rd RETURN ROLLER
EXIT GUIDE POLE
DRUM ENT. GUIDE POLE
SUP. TEN. ROLLER
2nd SUP. GUIDE POLE
1st GUIDE POLE

Fig. 2-31

2.4.9 Supply side differential transformer position

1. Remove the cassette compartment. (Refer to subsection 2.3.1.)
2 Short pins 1 and 2 of the connector (51 – 1) of the cassette compartment and trun on the power switch. In this condition, the CPU operates as if a cassette is loaded.

   As the two arms swing in this state, turn off the power as they stops at the draw end.

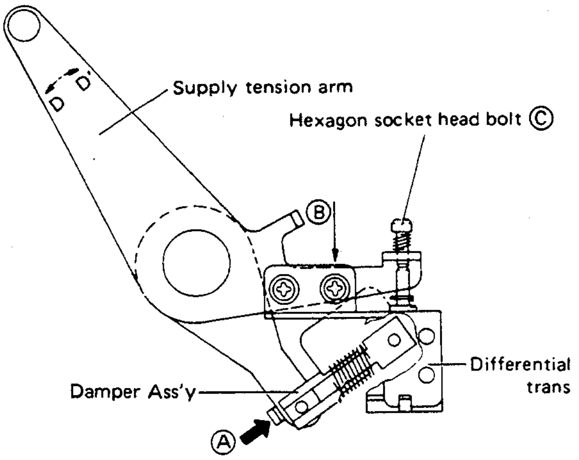


Fig. 2-32

3. At this time, make sure that the socket bolt Ⓒ and the axis of the transformer shaft are aligned. Insert screws Ⓑ into the center of the long holes of the differential transformer bracket and tighten them. (Refer to section 5.2.9- (122) , (123)).
4. Perform section 2.6.2 Differential transformer input level.
5. Set for the stop mode without cassette. (Refer to section 2.3.20.)
6. When the spring of the supply tension arm is released from the condition that it was compressed on Ⓐ by fingers, adjust the socket bolt Ⓒ so that 0.06 Vp-p is obtained at TP1 the trans. output level.
7. Execute section 2.6.6 Tape tension adjustment.

2.4.10 Take-up side differential transformer position

1. Set for the loading mode in the same manner as for the supply side differential transformer positioning. Refer to sub section 2.4.9.
2. For fixing the transformer, it can be moved in the direction that it is pushed. (Ⓐ in the figure)

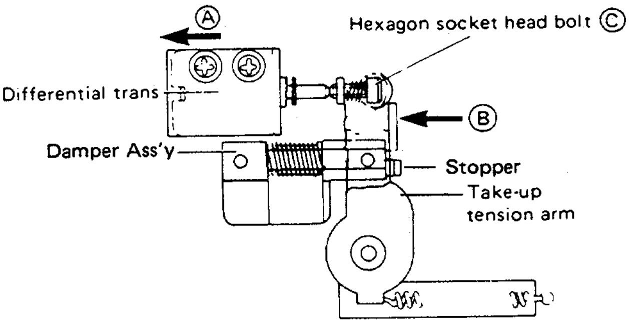


Fig. 2-33

3. Perform section 2.6.2 Differential transformer input level.
4. Set for the stop mode without cassette tape (Refer to section 2.3.20).
5. When the part of Ⓑ is released from the condition that it was once pressed by fingers. Adjust the socket bolt Ⓒ so that TP3 trans. output level is 0.63 Vp-p.
6. Execute section 2.6.6 Tape tension adjustment.

2.5 TAPE SENSOR SENSITIVITY ADJUSTMENT

No.	Item	Check Point	Adjustment Parts	Mode	Description
1	Start (Left)	TP1 (Fuse PWB)	R18 (T. END SENS.)	STOP	Check the "L" (0 V) signal at TP1 or TP2, cover the sensor with the filter (5 leader tapes) and set R18 or R19 at a position at which the signal level changes from "H" to "L".
2	End (Right)	TP2 (Fuse PWB)	R19 (T. BEG. SENS.)		

- **Fuse P.W.B.**

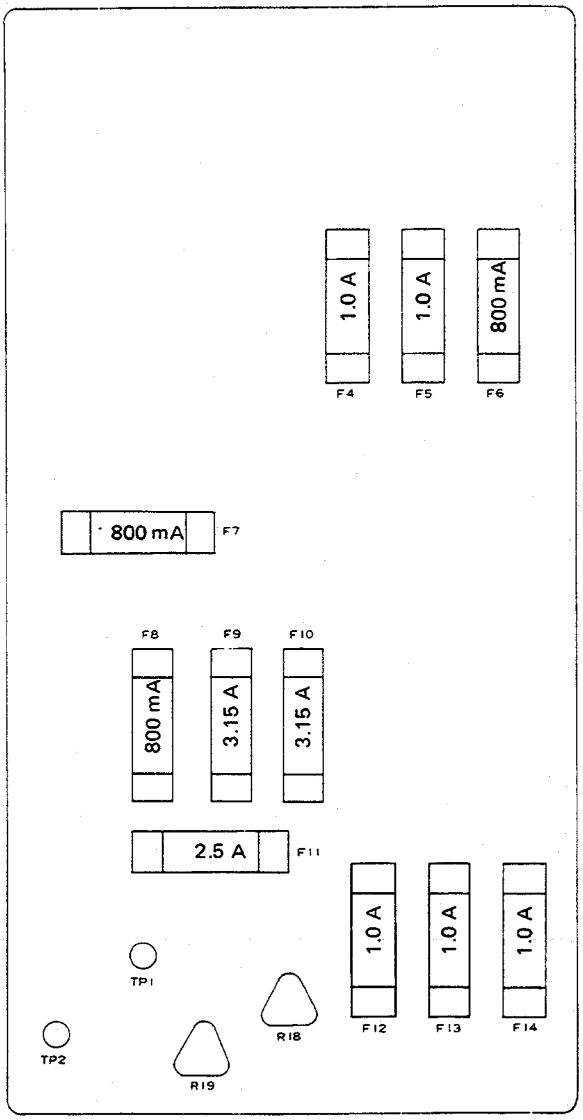

1.0 A
1.0 A
800 mA
F4
F5
F6
800 mA
F7
F8
F9
F10
800 mA
3.15 A
3.15 A
2.5 A
F11
1.0 A
1.0 A
1.0 A
TP1
R18
F12
F13
F14
TP2
R19

Fig. 2-34

Note: Parts location viewed from parts side.

2.6 REEL SERVO OSC. LEVEL ADJUSTMENT

- **Reel MDA P.W.B.**

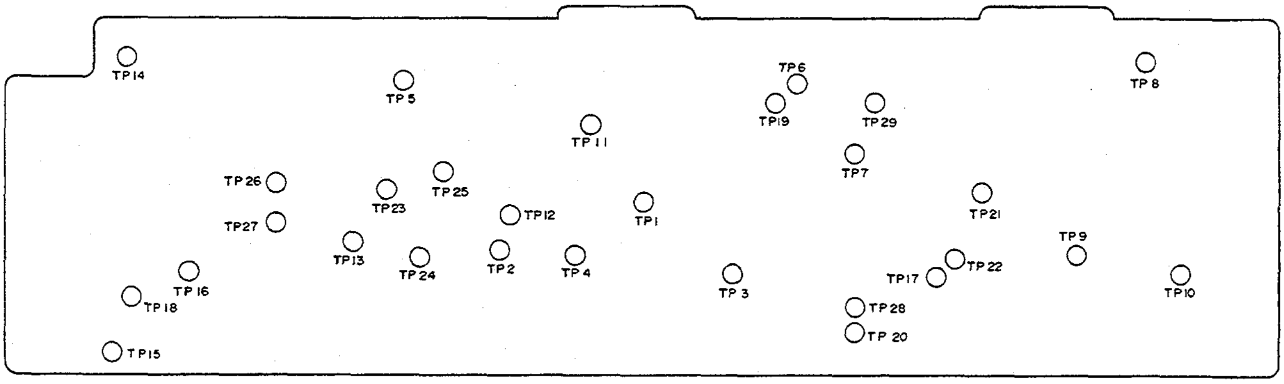

TP14
TP5
TP6
TP19
TP29
TP8
TP11
TP7
TP26
TP23
TP25
TP12
TP1
TP21
TP27
TP9
TP13
TP24
TP2
TP4
TP3
TP17
TP22
TP16
TP18
TP10
TP28
TP20
TP15

Fig. 2-35

Notes: 1) Test points (TP) on the Reel MDA PWB are not usually used for the adjustments.
2) Parts location viewed from parts side.

- **Reel servo P.W.B.**

Note: Parts location viewed from pattern side.

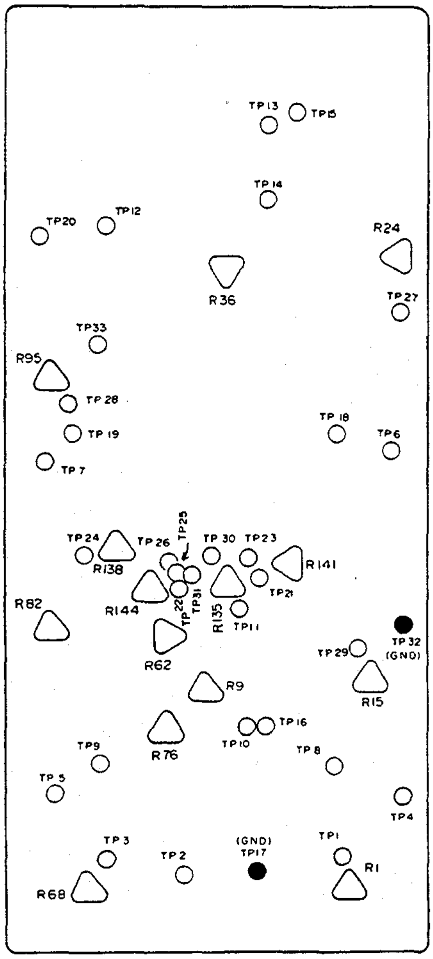

TP13
TP15
TP14
TP20
TP12
R24
R36
TP27
TP33
R95
TP28
TP19
TP18
TP6
TP7
TP24
TP26
TP25
TP30
TP23
R138
R141
TP21
R144
R82
TP22
TP31
R135
TP11
TP32
(GND)
R62
TP29
R9
R15
TP16
TP9
R76
TP10
TP8
TP5
TP4
TP3
TP2
(GND)
TP17
TP1
R1
R68

Fig. 2-36

No.	Item	Check Point	Adjustment Parts	Mode	Description

2.6.1 Reel servo osc. level

1	Reel servo osc.	TP2 (REEL S. PWB)	–	STOP	Confirm that the level is 3.3 ± 0.3 Vp-p, 3.5 ± 0.5 kHz.

2.6.2 Differential transformer input level

1	Supply side	TP1 (REEL S. PWB)	R1	STORE	Set R1 or R68 at a position at which the input level is 0.7 Vp-p with the transformer shaft most extended.
2	Take-up side	TP3 (REEL S. PWB)	R68		

2.6.3 Supply side primary settings

1	MDA offset	TP30 (REEL S. PWB)	–	STOP	Confirm that the voltage at TP30 is less than 0.30 V DC.
2	Store torque		R141	STORE	1) Remove the cassette compartment and lock the reels. (*Refer to Fig. 2-37 below.) 2) Set for the loading mode without cassette (see section 2.3.20), then, during the supply tension arm is in the store mode, adjust R141 so that 1.9 V DC is obtained at TP30.
3	Drawer torque		R36	DRAW	In the same manner as the above item 2, adjust R36 to obtain 0.9 V DC at TP30 as the tension arm opens.

2.6.4 Take-up side primary settings

1	MDA offset	TP31 (REEL S. PWB)	–	STOP	Confirm that the voltage at TP31 is less than 0.30 V DC.
2	Drawer torque		R135	DRAW	1) Remove the cassette compartment and lock the reels. (*Refer to Fig. 2-37 below.) 2) Set for the loading mode without cassette (see section 2.3.20), then, during the supply tension arm is in the drawer mode, adjust R135 so that 1.8 V DC is obtained at TP31.
3	Store torque		–	STORE	In the same manner as the above item 2, confirm that the voltage at TP31 is 4.4 ± 0.2 V DC.

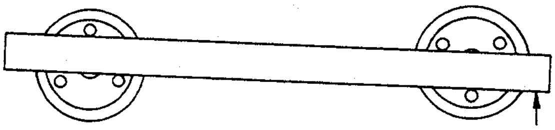
2.6.5 Lower limit tension

1	Supply	TP27	R24	STOP	Since this tension is not used, set R24 for fully counterclockwise and R95 for fully clockwised as viewed parts side. Obtain both minimum voltages.
2	Take-up	TP28	R95		

Precautions:
Precautions shall be taken concerning the following items when store torque is set (Supply and Take-up).

1) Lock the reels (*Refer to Fig. 2-37 right.)
2) Measure the voltage while the loading arm/tension arms are moving toward the tape cassette.
   Also, measure the voltage while the arms are separated from the cassette for drawer torque setting.
3) Adjust R141 and R135 before performing the tape tension adjustment (2.6.6). Furthermore, because all adjustments are changed when these VRs are adjusted, be sure to perform the tape tension adjustment (2.6.6) on page 2-19.

(*) Reel locking example:



After removing the cassette compartment, insert a bar so that the reels do not rotate.

Fig. 2-37

2.6.6 Tape tension

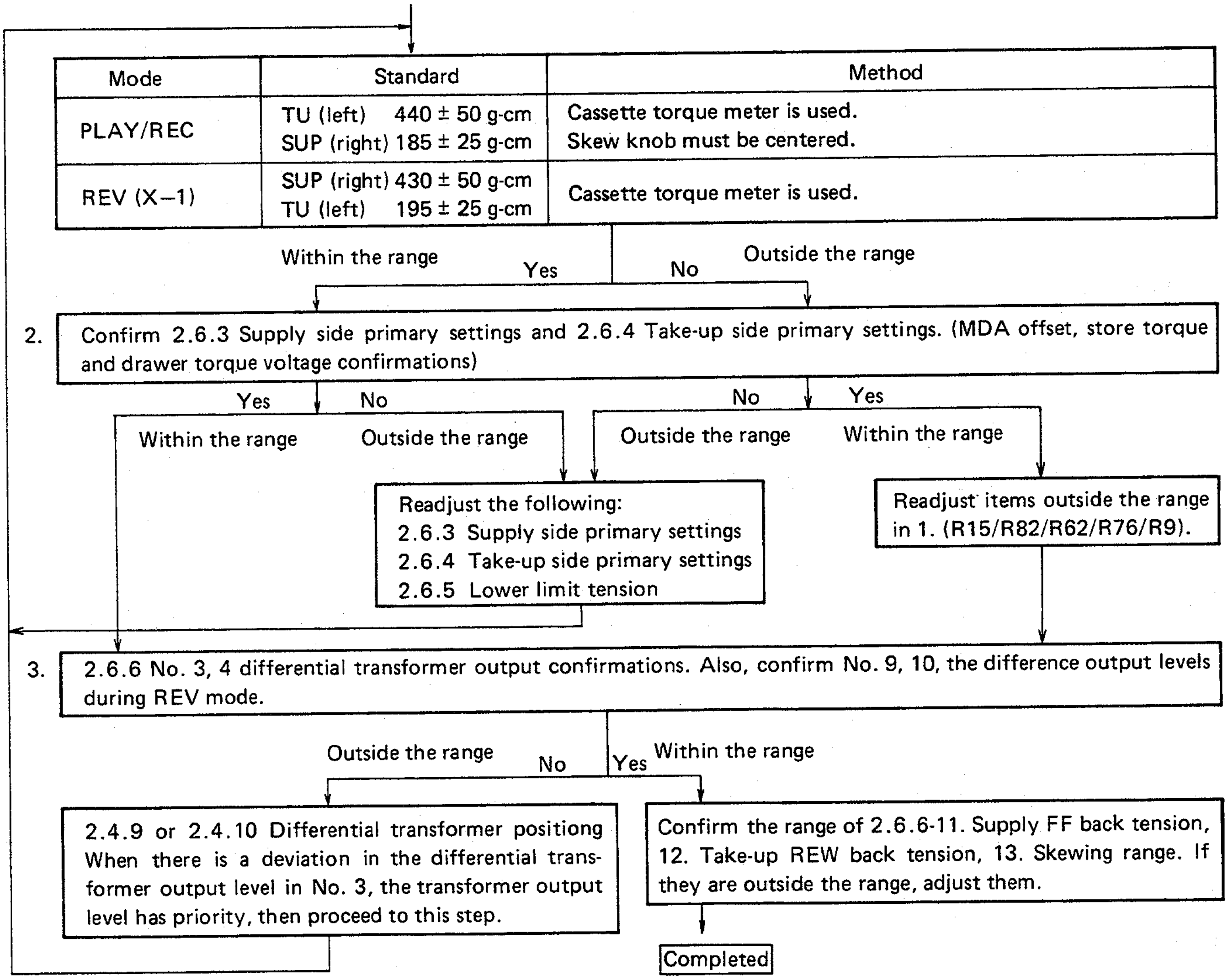
Note: Before performing this adjustment, confirm and adjust 2.6.3 Store torque (R141) and 2.6.4 Store torque settings (R135). And also before performing the following step 7 adjustment, confirm 3.3.1 MR amp. bias for accurate adjustment.

Cassette torque meter (PUJ42373R) : Only used for step 7. (SUP REV tension)
Cassette torque meter (PUJ42373) : Use for other steps.

No.	Item	Check Point	Adjustment Parts	Mode	Description
1	Supply tension	Cassette torque meter (Supply side)	R15 (REEL S. PWB)	REC	Adjust R15 to obtain the tension of 185 gr-cm.
2	Take-up tension	Cassette torque meter (Take-up side)	R82 (REEL S. PWB)		Adjust R82 to obtain the tension of 440 gr-cm.
3	Differential trans. output	TP1 (REEL S. PWB)	–		1) Confirm that the voltage at TP1 is 0.30 ± 0.04 Vp-p. 2) When it exceeds, confirm 2.4.9.
4	Differential trans. output	TP3 (REEL S. PWB)	–		1) Confirm that the voltage at TP3 is 0.30 ± 0.04 Vp-p. 2) When it exceeds, confirm 2.4.10.
5	Supply tension	Cassette torque meter (Supply side)	R62 (REEL S. PWB)	PLAY	1) Turn the SKEW VR to its center position. 2) Set for the playback mode and adjust R62 to obtain 185 gr-cm tension.
6	Take-up tension	Cassette torque meter (Take-up side)	–		1) Turn the SKEW VR to its center position. 2) Set for the playback mode and confirm that the take-up tension is 440 ± 20 gr-cm.
7	Supply REV tension	Cassette torque meter (Supply side)	R9 (REEL S. PWB)	REV (X-1)	Adjust R9 for 430 gr-cm tension.
8	Take-up REV tension	Cassette torque meter (Take-up side)	R76 (REEL S. PWB)		Adjust R76 for 195 gr-cm tension.
9	Differential trans. output	TP1 (REEL S. PWB)	–		Confirm that the voltage at TP1 is 0.35 ± 0.04 Vp-p.
10	Differential trans. output	TP3 (REEL S. PWB)	–		Confirm that the volatge at TP3 is 0.42 ± 0.04 Vp-p.
11	Supply FF back tension	TP30 (REEL S. PWB)	R144 (REEL S. PWB)	FF	1) About 4 minutes before ending of KCA-60K tape winding, set the unit for FF mode. 2) As the tape is being forwarded, and normal FF speed is achieved, confirm that the voltage at TP30 drops to 2.0 ± 0.2 V DC. Readjust R144 at this time to achieve the 2 V specification.
12	Take-up REW back tension	TP31 (REEL S. PWB)	R138 (REEL S. PWB)	REW	1) Around 4 minute after starting of KCA-60K tape winding, set the unit for REW mode. 2) As the tape is being rewound at normal rewinding speed, adjust R138 so that the voltage at TP31 becomes 1.5 ± 0.2 V DC.
13	Skewing range	Cassette torque meter (Supply side)	–	PLAY	1) Turn the SKEW VR fully counterclockwise and check that the torque is 250 ± 20 gr-cm. 2) Turn the SKEW VR fully clockwise and check taht the torque is 125 ± 15 gr-cm. 3) At the torque is exceeded, confirm step No. 5 Supply tension and adjust R62 if necessary. 4) If the torque is still out of the range even above adjustment has been done, or the torque differs 10 gr-cm or more when the SKEW knob is reset from the both ends, replace PRD30107A-02 dumper ass'y.

2.6.7 Final torque confirmation and adjustment steps

1. Confirm that it is within the range shown below before performing the adjustment.



Mode	Standard	Method
PLAY/REC	TU (left) 440 ± 50 g-cm SUP (right) 185 ± 25 g-cm	Cassette torque meter is used. Skew knob must be centered.
REV (X–1)	SUP (right) 430 ± 50 g-cm TU (left) 195 ± 25 g-cm	Cassette torque meter is used.

Within the range
Yes
No
Outside the range

2. Confirm 2.6.3 Supply side primary settings and 2.6.4 Take-up side primary settings. (MDA offset, store torque and drawer torque voltage confirmations)

Yes
No
Within the range
Outside the range
No
Yes
Outside the range
Within the range

Readjust the following:
2.6.3 Supply side primary settings
2.6.4 Take-up side primary settings
2.6.5 Lower limit tension

Readjust items outside the range in 1. (R15/R82/R62/R76/R9).

3. 2.6.6 No. 3, 4 differential transformer output confirmations. Also, confirm No. 9, 10, the difference output levels during REV mode.

Outside the range
No
Yes
Within the range

2.4.9 or 2.4.10 Differential transformer positiong When there is a deviation in the differential transformer output level in No. 3, the transformer output level has priority, then proceed to this step.

Confirm the range of 2.6.6-11. Supply FF back tension, 12. Take-up REW back tension, 13. Skewing range. If they are outside the range, adjust them.

Completed

2.7 TAPE TRANSPORT

2.7.1 Tape path

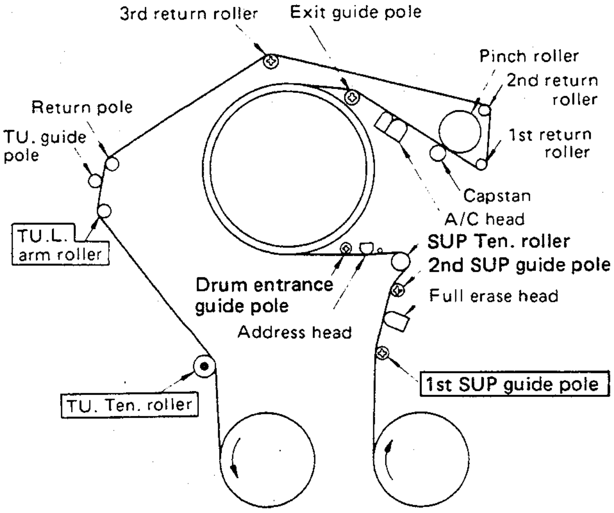

3rd return roller
Exit guide pole
Pinch roller
2nd return roller
Return pole
TU. guide pole
1st return roller
Capstan
A/C head
TU.L. arm roller
SUP Ten. roller
2nd SUP guide pole
Drum entrance guide pole
Full erase head
Address head
1st SUP guide pole
TU. Ten. roller

Fig. 2-38

- Tape transport check method

The following two methods are used in check of tape transport.

1. Checking the FM signal waveform (V. RF on the front panel/TP57 of the VIDEO R/P B7).
2. Checking the tape for damage by eyes. (The tape should be free from damage in any one of draw, load, play, fast-forward, rewind, search, unload and store modes.)

2.7.2 Checking procedure

1. Check the height and inclination of each pole and roller, especially verticality of the three Y axes shown in Fig. 2-39. (Refer to section 2.4.8.)
2. Check the tape tension at least in the play mode. (Refer to subsection 2.6.6.)
3. Check that an ordinary tape is free from abnormal run, damage, etc. The tape should not be distorted in either edge due to the portion including guide poles and guide rollers shown in Fig. 2-38. When it can be known that the tape is damaged even slightly, check the guide poles and guide rollers for height and verticality and perform their rough adjustment until such a tape distortion disappears.
4. Check the FM signal waveform using the alignment tape MO-22HS.

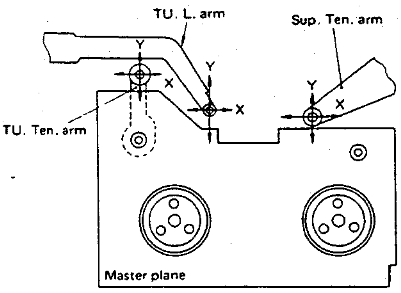

TU. L. arm
Sup. Ten. arm
Y
X
Y
X
Y
X
TU. Ten. arm
Master plane

Fig. 2-39

2.7.3 Tape transport check

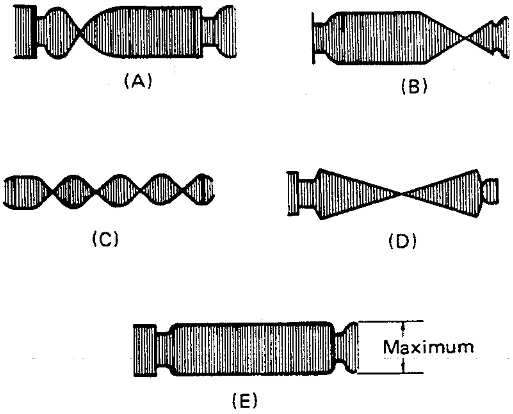
Use the tape KCA-60K or KCS-20K and set the unit for the play mode.

1. Drum entrance
   Check that the tape is free from serious wrinkling due to the upper or lower flange or first or second supply guide pole, supply tension roller or drum entrance guide pole.
2. Drum lead portion
   Check that the tape is free from traveling floated or wrinkled due to the drum lead portion.
3. Drum exit
   Confirm that the tape is free from serious wrinkling due to the upper flange of the EXIT guide pole.

   Note: Visually confirm that the up/down tape tension is even between the A/C head and the capstan shaft. Also, confirm this in the REV mode.
4. Take-up side
   Check that the tape is free from serious wrinkling due to the upper or lower flange of third return roller, take-up guide pole, take-up loading arm roller or take-up tension roller.

2.7.4 Pattern matching (Interchangeability)

1. Connect a probe to TP57 (VIDEO R/P B7) or the V. RF (front panel) and apply from TP71 (D/C SERVO C7) or D. PULSE as a trigger signal.
2. Put the tracking VR center, play stairstep segment of the alignment tape MO-22HS.



(A) (B) (C) (D) (E)

Fig. 2-40

1) When the waveform shown in [A] appears;
Perform the fine adjustment of the 2nd supply guide pole to control the tape from the bottom and the supply tension roller to control it from the top, and put the tape in line with the tape guide of the drum so that the waveform shown in [E] appears.
2) When the waveform shown in [B] appears;
Perform the fine adjustment of the Exit guide pole height to control the tape from the top and put the tape in line with the tape guide of the drum so that the waveform shown in [E] appears.
3) When the waveform shown in [C] or [D] appears;
Perform above steps 1) and 2) until the waveform shown in [E] is obtained.

2.7.5 Pattern matching and linearity

1. Same as previous item 2.7.4, turn the tracking VR during play and set the knob at a position at which noise begins to appear on the CRT monitor screen. At this time;

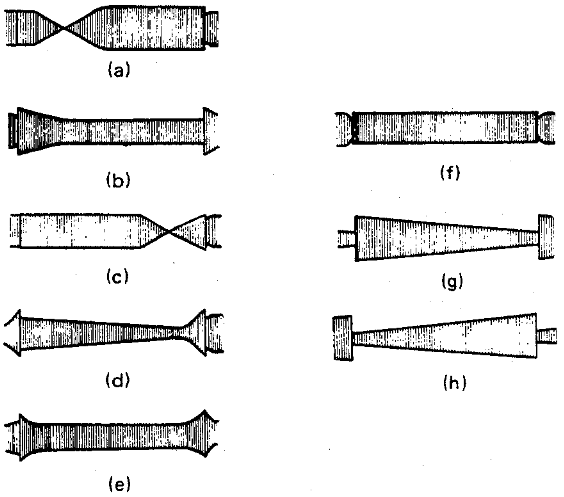
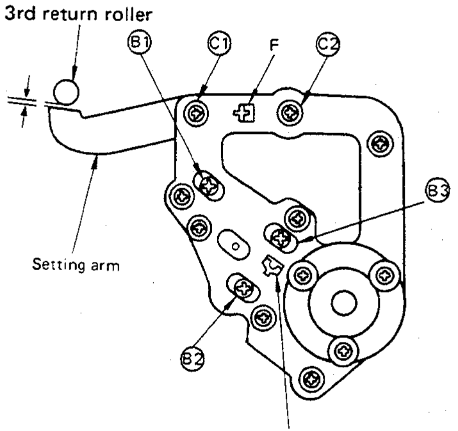


Fig. 2-41

1) When the FM waveform is (a) or (b);
Perform the fine adjustment of the 2nd supply guide pole and supply tension roller to obtain a waveform such as (f), (g) or (h).
If the FM signal waveform fluctuates, stop adjustment at a point at which the fluctuation decreases.
2) When the FM waveform is (c) or (d);
Perform the fine adjustment of the EXIT guide pole to obtain a waveform such as (f), (g) or (h).
If the FM signal waveform fluctuates, stop adjustment at a point at which the fluctuation decreases.
3) When the FM waveform is (e);
Perform steps 1) and 2) to obtain one of (f), (g) and (h).

2. Next, adjust the A/C head inclination with the following procedure.

Note: The A/C head inclination adjustment, as well as the EXIT guide pole adjustment, directly influences the FM pattern, consequently the following two conformations; FM pattern and audio output level must be done at the same time.



Height adjustment : B1, B2, B3
Tilt adjustment : B2, B3
Azimuth adjustment : B1

Fig. 2-42

1) Adjust screw B2 shown in Fig. 2-42 so that it is parallel to the capstan shaft by using a parallel plate.
2) Connect the other side of the probe to either AUD-2 OUT or TP36 (AUDIO PWB), then adjust the B1 screw so that the 10 kHz playback output of the MO-22HS becomes maximum. If the FM waveform differs from (f), (g), (h) at that time, adjust the A/C head height and inclination again so that the FM waveform and audio output level are satisfied.
3) Turn the tracking control so that the FM level becomes half (–6 dB), then confirm that noise does not exist on the monitor screen.

3. After the above adjustments are completed, adjust the Drum entrance guide pole height so that the top flange of the pole just comes in line with the top edge of the tape; at this time, avoid any influence on the FM pattern.

2.7.6 Setting arm positioning

Loosen screws C1 and C2 shown in Fig. 2-42. Insert a minus screwdriver into F, then fasten them in such a way that there is a space between the arm and 3rd return roller during play and there is no space during REV X–1.

2.7.7 Reverse (REV) tape transport

Note: Before performing the following adjustment, 2.4.8 Height adjustment of poles and rollers, 2.7.5 Pattern matching and linearity and 2.7.6 Setting arm positioning must be completed.

1. Change the mode from play to reverse search. Confirm that the tape up/down movement at the 1st return roller portion is zero. If there is, adjust the height of the 3rd return roller roughly.

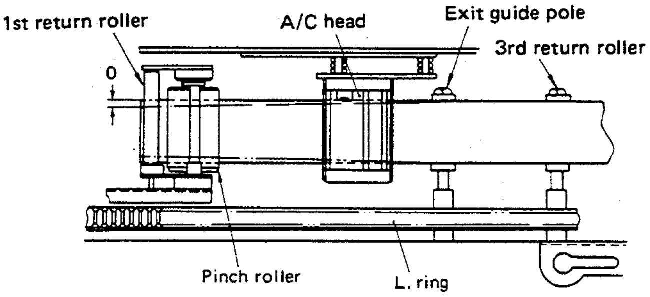


Fig. 2-43(a)

2. Check that the tape is free from bending or wrinkling due to any guide pole.
3. Record a color bar signal on a KCS-20K where not the both ends of one minute, then play it back.
4. Adjust the 3rd R-roller height so that the level at TP7 (D/C SERVO A7) does not change in FWD (X10) and in REV (X-10) mode.

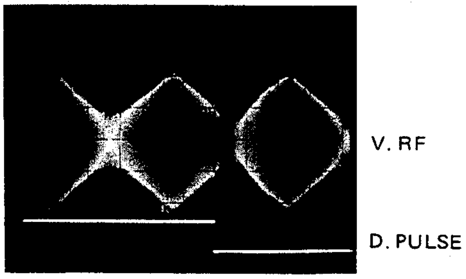


Fig. 2-43(b)

5. And also confirm the FM waveform that it is similar as shown in Fig. 2-43(b) in REV (X-1) mode and there is one noise bar on the monitor TV screen in Still mode. Check the time that is within 1 second to become a parallel FM waveform after the mode is changed to Play.
6. Confirm the waveform that one crossing portion in one field remains when the unit enters Still mode from REV (X-20) mode.
7. Play the MO-22HS alignment tape and perform the same steps 4 through 6.
8. If they are not satisfied steps 3 through 7, execute the following steps.
   1) Confirm that the tape is free from abnormal run and damage even slightly between the pinch roller and 1st R. roller, 1st R-roller and 2nd R. roller, 2nd R. roller and 3rd R. roller.
   2) When some curling or wrinkling is observed, check and adjust A/C head tilt and 3rd R. roller perpendicularity or replace the pinch roller ass'y (PRD30108A-02).
9. Check the pinch roller perpendicularity (section 2.4.3) and the loading end setting (section 2.4.6).
   If any of them does not meet the standard, perform the adjustment again.

2.7.8 Video head relative height

1. Play the stairstep signal of the MO-22HS Alignment Tape and set for the Still mode.
2. Observe monitor-TV and confirm only a single noise bar.
   1) Connect oscilloscope to TP57 (VIDEO R/P B7).
   2) Trigger the oscilloscope externally with the signal from TP71 (D/C SERVO C7).
   3) Alternate between + and − settings of the trigger slope. Confirm absence of shift at the crosspoint.
3. If shift is observed at the crosspoint, adjust as follows.
   1) When switching from − to +, if the shift is toward the right, turn the CH2 setscrew (3 mm) clockwise.
   2) If the shift is toward the right when switching from + to −, turn the CH1 setscrew (3 mm) counter-clockwise.
4. After adjusting, record and playback a test pattern signal. In the Still mode, confirm only a single noise bar.

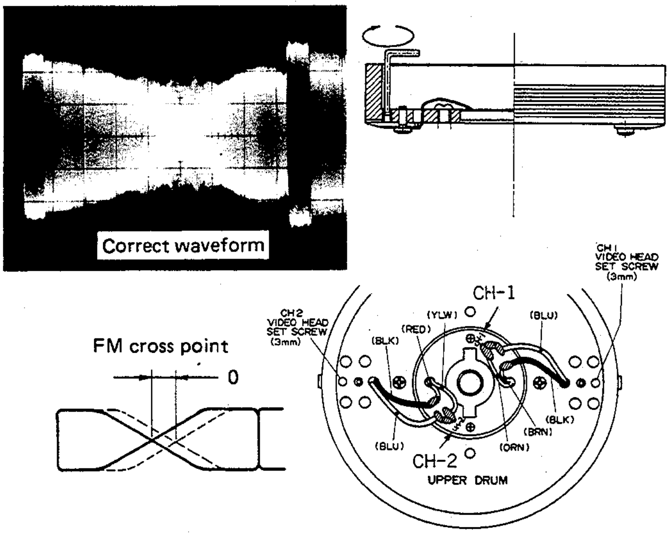
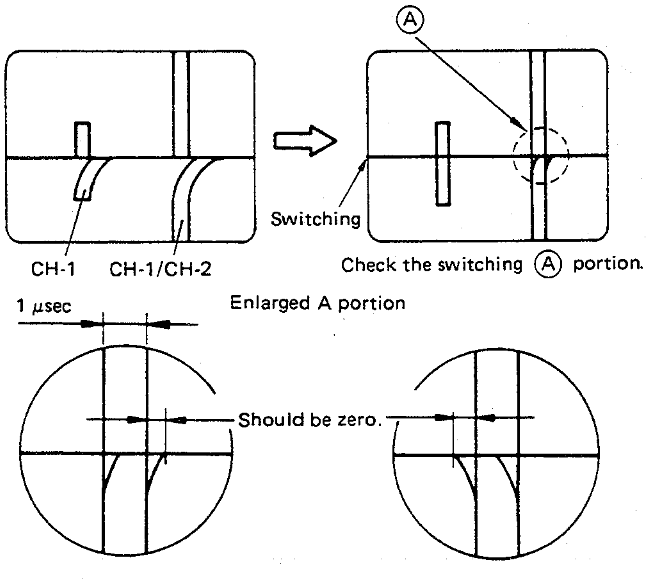


Fig. 2-44

Note: 1) To check the head, confirm the display on the circuit board on which the blue wire from the video head is soldered. (Refer to the above figure.)
2) If the setscrew is turned too much, the video head might be damaged. Therefore, be sure to turn it less than 1/100 rotation (3.6°).

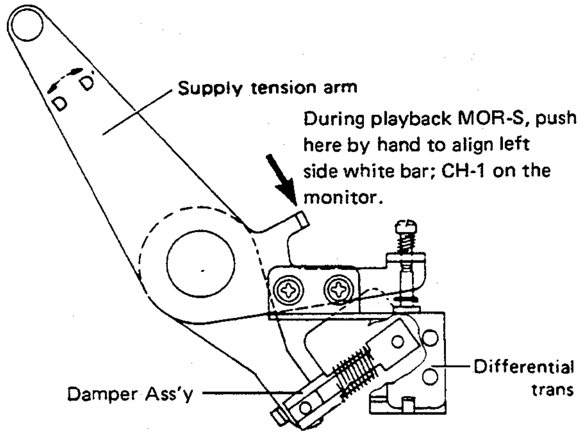
2.7.9 Video head –180° division (dihedral)

1. Connect the VIDEO OUT terminal to monitor TV. Play the MORE-S alignment tape, and check the monitor screen.
2. Perform the skew adjustment by pushing the lever shown in Fig. 2-46 by finger so that the white bar at the left side on the monitor becomes straight. (Standard value is within 1/3 of the white bar.)
3. At the time, check the switching Ⓐ portion of the white bar at the right side of the screen for deviation width.
4. If deviated, determine which channel is delayed as shown in Fig. 2-45. Be sure to adjust in the forward direction.
5. To advance CH2, insert eccentric pin tool into "CH2 Hole C", for CH1, use "CH1 Hole C". Adjust only by small amount at a time, then check with Alignment tape. Repeat adjustment as necessary.
6. Confirm the following and if necessary, adjust it.
   1) CTL head positioning (see section 2.7.12)
   2) P.B. switching point (see section 3.3.10)
   3) REC switching point (see section 3.3.11)
   4) Video switching point (see section 3.3.12)


Ⓐ
Switching
CH-1
CH-1/CH-2
Check the switching Ⓐ portion.
1 μsec
Enlarged A portion
Should be zero.

(CH-2 side delayed) (CH-1 side delayed)

Fig. 2-45


Supply tension arm
Damper Ass'y
Differential trans

During playback MOR-S, push here by hand to align left side white bar; CH-1 on the monitor.

Fig. 2-46

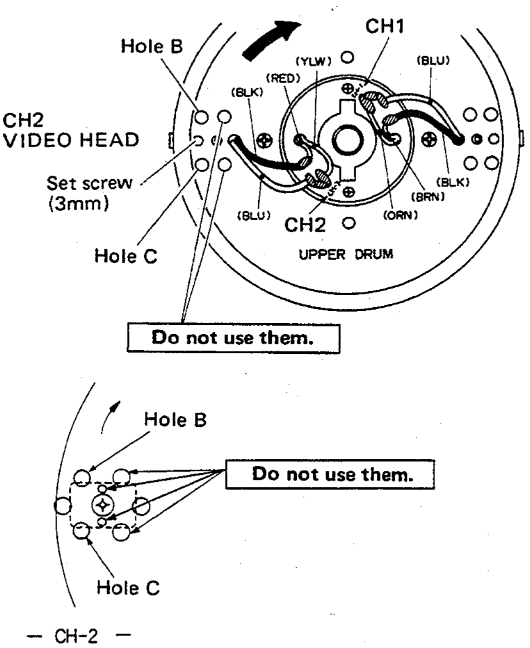
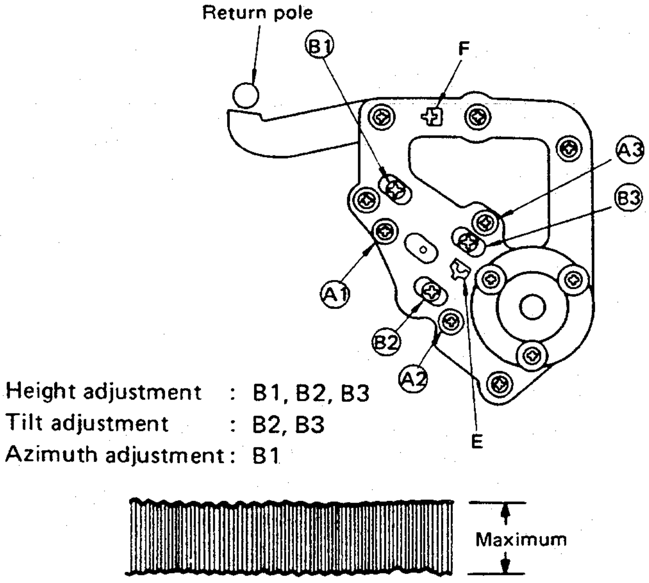

Hole B
CH1
(YLW)
(RED)
(BLU)
(BLK)
CH2
VIDEO HEAD
Set screw
(3mm)
Hole C
(BLU)
CH2
(ORN)
(BRN)
(BLK)
UPPER DRUM
Do not use them.
Hole B
Do not use them.
Hole C
— CH-2 —

Fig. 2-47

2.7.10 Audio/control head height

Note: This adjustment influences tape running (FM pattern). Therefore, after the adjustment is performed, confirm the 2.7.5 Pattern matching and linearity.

1. Connect a probe to TP36 (AUDIO PWB) and play the MO-22HS alignment tape's 10 kHz audio segment.
2. Turn the screws (B1), (B2) and (B3) in the same angle and in the same direction each other.
3. At this time, if the level at TP36 goes up, turn the screws further more in the same direction, however, the level goes down, turn them in the reverse direction until the maximum level is obtained.
4. After completion of the head height adjustment, proceed the following head azimuth adjustments.


Return pole
B1
F
A3
B3
A1
B2
A2
E
Maximum

Height adjustment : B1, B2, B3
Tilt adjustment : B2, B3
Azimuth adjustment : B1

Audio waveform

Fig. 2-48

2.7.11 Audio/control head azimuth

1. Connect oscilloscope to TP36 (AUDIO PWB).
2. Play the MO-22HS slignment tape's 10 kHz audio segment, and observe the audio waveforms.
3. Adjust the screw (B1) slightly to maximize audio output (see Fig. 2-48).
4. Change the prove connection from TP36 to TP52 and set the AUDIO MONITOR switch to MIX position, and perform the above step 3. again.
5. After completion of the head azimuth adjustment, check the head height again.
6. Perform sections 2.7.3 through 2.7.7 for tape transport.

2.7.12 CTL head positioning

1. Play the MOPE-XS alignment tape.
2. Observe the waveform at TP71 (D/C SERVO C7) and at TP57 (VIDEO R/P B7) using an oscilloscope.
3. Loosen the three screws (A1), (A2), (A3) only enough to allow the A/C head to be turned smoothly with a slotted screwdriver.
4. Put the slotted screwdriver in the hole (E) shown in Fig. 2-48 and adjust the position of the A/C head so that the waveforms at TP71 and TP57 are as shown in Fig. 2-49.
5. Play the MO-22HS's stairstep segment. Then, set the tracking VR to the center position and further adjust using the same screwdriver so that the waveform at TP57 is maximized.
6. Confirm the following and if necessary, adjust it.
   1) P.B. switching point (see section 3.3.10)
   2) REC switching point (see section 3.3.11)
   3) Video switching point (see section 3.3.12)

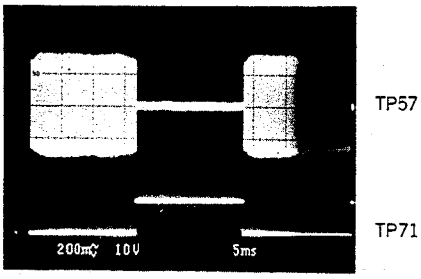


Fig. 2-49

2.7.13 Self-recording FM level change and drop

1. Record a stairstep signal on a KCS-20K tape that not both ends of 1 minute.
2. Play back the tape and confirm the FM waveform at V. RF terminal by using an oscilloscope triggered D. pulse.
3. Referring to Fig. 2-50, confirm that FM level variation (comparison of levels [a] and [b]) is more than 95%.
4. In the same manner as the above, confirm that FM dropping (comparison of level [c] at the drum entrance and level [d] at the drum exit) is more than 75%.

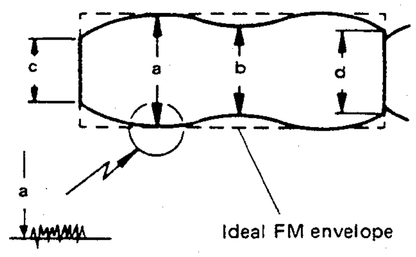
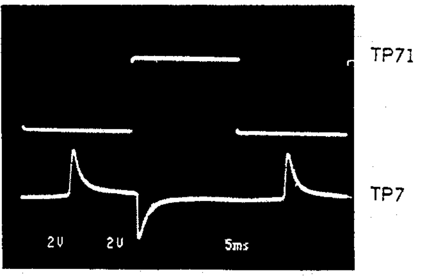


Fig. 2-50

2.7.14 Control output level check

1. Connect the probes to TP7 and TP71 (both on the D/C SERVO A7 and C7) and apply trigger from TP71.
2. Play the MO-22HS alignment tape and check that the level of the control pulse at TP7 is 2.4~8.4 Vp-p.
3. Check that the duty cycle of the control pulse in the positive-going direction is more than 51%.
4. Check that there is no drop of the control pulse output level in the reverse mode, and also switch to REV –X10 and FWD X10. Then confirm that the CTL output levels are the same. If they are different, perform 2.7.7 REV tape transport again.
5. Confirm that the pulse is more than 10 Vp-p at TP32 (D/C SERVO A3) during slow search at the slowest speed.



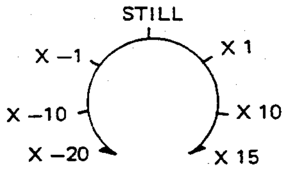
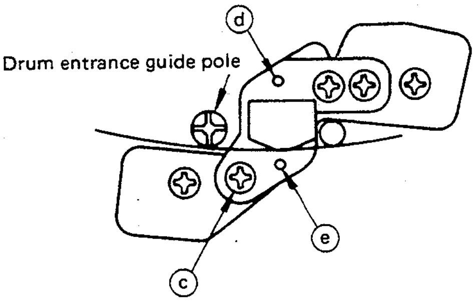
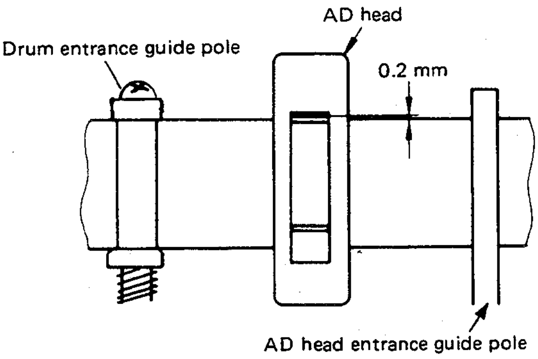


Fig. 2-51 Speed and dial position

2.7.15 Address head height and azimuth

1. Play the MOCE-2HS alignment tape.
2. Connect the oscilloscope's CH1 probe to D. PULSE terminal and CH2 probe to TP3 (TIME CODE PWB), confirm that the waveform shown in the following figure can be observed by adjusting the triggering point.





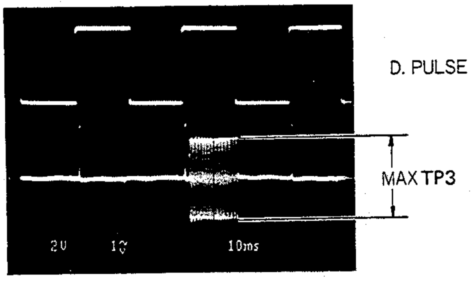


Fig. 2-52

3. Adjust the screw ⓒ, setscrews (3 mm) ⓓ, ⓔ, to maximize output level of the sine wave. At this time, make sure to confirm that the waveform is in parallel with the guide pole on the right side using the parallel plate. In other words, the PB output level at TP3 is maximized in parallel with the AD head entrance guide pole.
4. Press the supply tension roller from the upside slightly and check that the PB output level lowers. If it rises, perform re-adjustment.

Note: The PB output level at TP3 should be 1.6 to 2.2 Vp-p.

2.7.16 Address head height

Note: Adjustments of this section must be done after completion of the REC and PB switching point adjustments (section 3.3.10 and 3.3.11).

1. Record the monoscope.
2. During recording, connect the probes to TP74 (Y/C OUT D1) and the VIDEO OUT terminal, Then, apply trigger from D. PULSE on the front panel. (Check that the REC switching point is at 2.75 H before the V. sync. signal by ⊕ slope trriger as shown in Fig. 2-53.)
3. Apply a signal of 4 kHz, 0 dBs (0.775 Vrms/2.19 Vp-p) sine wave to the time code input terminal.
4. By making a shortcircuit between TP5 and TP6 (GND) (both on the TIME CODE PWB) in playback of this recorded tape, the signal waveform becomes as shown in Fig. 2-54. Observing it, confirm that envelope at TP74 is in the period of 5.0 – 6.0 H prior to the starting point of V. sync. signal. Waveform fluctuation must be within 1H.
5. If fluctuation is over 1H, re-adjust height and azimuth of the address head with the drum entrance guide pole.
6. If the said envelope is out of 5.0 – 6.0 H period, re-adjust height of the address head to meet the standard.

Note: Do not set the alignment tape with making a short-circuit between TP5 and TP6.

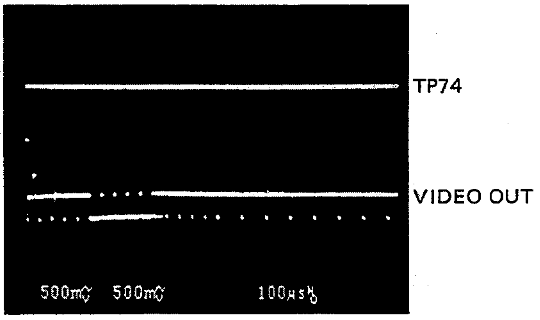


Fig. 2-53

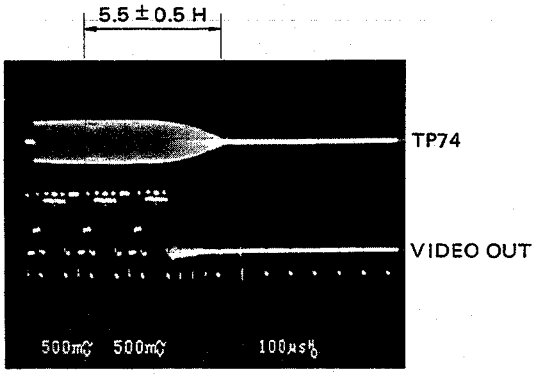


Fig. 2-54

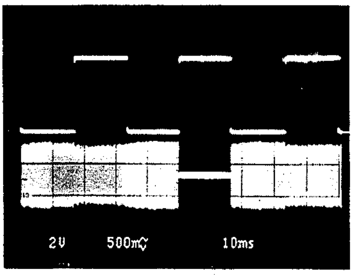
2.7.17 Address (AD) head positioning

Note: The following adjustments must be completed before this adjustment is performed.

1) After the tape running adjustment (2.7.1 to 2.7.16), the FM pattern is good.
2) Switching point adjustment (3.3.10 to 3.3.12)
3) Sub tracking adjustment (3.3.16).

Also, more than 15 minutes must have passed since the power was turned on and the set must have transient stability.

1. Play back the MOCE-2HS alignment tape. Confirm that the TIME CODE LED on the front panel lights at that time.
2. Connect the oscilloscope to CH-1 probe to the D.PULSE terminal and the CH-2 probe to V. RF (or TP57 VIDEO R/P B7). Then confirm that the FM signal is missing at the high D. pulse as shown in the figure below.



TRIG: D. pulse, (−) slope

Fig. 2-55

3. Next, connect the CH-2 probe to TP3 (TIME CODE PWB) and adjust the trigger level, then confirm that the waveform is as shown below.

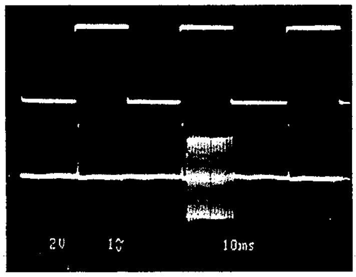


Fig. 2-56

4. Confirm that the pulse peak at TP3 is within ±1 msec. to the rise of D. pulse.

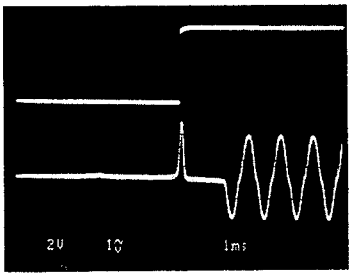


Fig. 2-57

5. If the difference is ±1 msec or more, slightly loosen the screws Ⓕ and Ⓖ, and insert the jig (PUJ47351-2) on the screw Ⓕ, then adjust the base position so that the waveform deviation is within 0.3 msec as shown in Fig. 2-57.

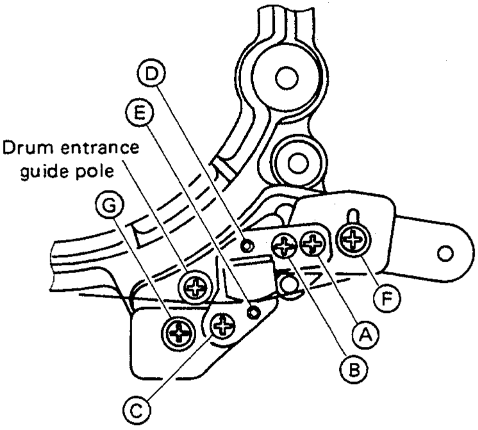


Fig. 2-58

6. Remove the jig while watching the waveform, then tighten Ⓕ and Ⓖ evenly so that waveform change is minimized.
7. Confirm that the head does not decline toward the front and back by using a parallel plate, then confirm the 2.7.5 pattern matching and linearity again. If necessary, re-adjust it.

SECTION 3
ELECTRICAL ADJUSTMENTS

- **Precautions before an electrical adjustment is performed.**

All front panel switches are in a vertical position unless specified otherwise. Y-FREQ response is at the 0 position. The standard positions for the DIP switches on each circuit board are shown on page 3-3.

- **The following instruments are required in addition to the below measuring instruments.**

Frequency counter (with more than 10 MHz, 100 mV sensitivity, high impedance)
Digital voltmeter (Readable up to 1 mV DC with a high impedance)
RF signal generator (100 kHz – 10 MHz)
Sweep signal generator (100 kHz – 10 MHz)
Oscilloscope (Dual trace, 50 MHz or higher)
Monitor TV
Waveform monitor (1485R or equivalent)
Video signal generator (1411 or TG-7/2)
Vectorscope (521A or equivalent)

- **JVC alignment tape contents**

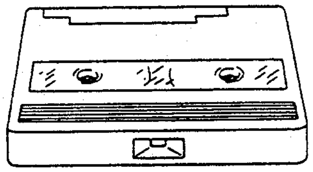
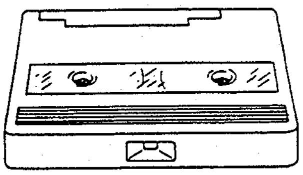
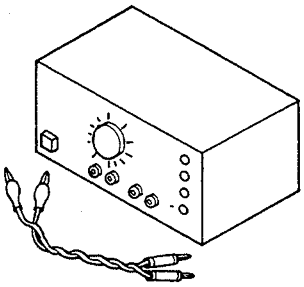
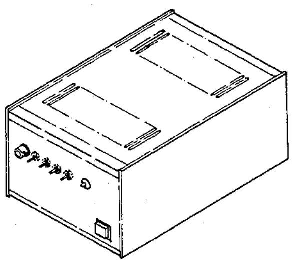
MO-21HSB

No.	Play back time	Video signal	Audio signal	Time code	Applications
1	4 min	Color Bars (With time-code-6 dB)	None	1 kHz	Color balance and level P.B channel switching Noise canceller, SYNC threshold
2	3 min	Color Sweep	None	None	Video frequency resonance
3	3 min	B/W Sweep	None	None	Video frequency response
	1 min	None	None	None	
4	3 min	RF Sweep	None	None	Video head resonance
	1 min	None	None	None	
5	3 min	RF Sweep	None	None	Video head resonance

MO-22HS

No.	Play back time	Video signal	Audio signal	Time code	Applications
1	6 min	Stair Steps (CH-1)	None	None	Tracking Preset
2	3 min	Stair Steps (CH-1/CH-2)	None	None	Switching point
3	3 min	Time code	3 kHz (CH-2)	1 kHz	Time code
4	2 min	None	10 kHz, –10 dB (CH-1/CH-2)	None	Audio frequency response
5	2 min	None	1 kHz, –10 dB (CH-1/CH-2)	None	Audio frequency response
6	2 min	None	1 kHz, 0 dB (CH-1/CH-2)	None	Audio level

- **Required test equipment and jig**

Alignment tape	Recording tape	DOC adjustment jig	DUB signal generating adapter
MO-21HSB/MO-22HS MORE-S/MOCE-2HS 	**Note:** All recording adjustments must be done with K-type tape. KCA-60K/KCS-20K 	PUJ61081 or PGJ05001-2 	PGJ05002-2 

DIP SWITCH SETTING

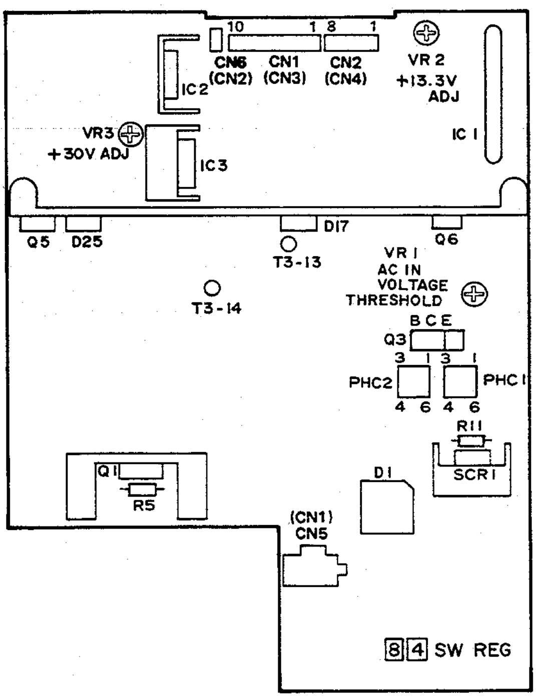
PWB	Switch No.	Factory Setting	Name of Switch	Operation
VIDEO R/P	S1	75 Ω (Leftward)	DUB Y Input Impedance	75 Ω : Impedance of DUB Y input = 75 Ω 1 kΩ : Impedance of DUB Y input = 1 kΩ
Y/C OUT	S1	–	–	–
	S2	OFF (Leftward)	Noise Canceller	ON : Inoperative OFF : Operative
	S3	ON (Leftward)	DOC	ON : Operative OFF : Inoperative
	S4	ON (Downward)	Correlating Noise Canceller (C)	ON : Inoperative OFF : Operative
SYSCON	S1-1	OFF	Not used	–
	S1-2	OFF	Not used	–
	S1-3	OFF	Not used	–
	S1-4	ON	Long Still Enable	OFF : Long Still inoperative ON : Long Still operative
	S1-5	ON	Direct Search Enable	OFF : Direct Search inoperative ON : Direct Search operative
	S1-6	OFF	Repeat Enable	OFF : Repeat inoperative ON : Repeat operative
	S1-7	ON	Direct Eject Enable	OFF : Direct Eject inoperative ON : Direct Eject operative
	S1-8	ON	Auto REW Enable	OFF : STBY (Standby) Stop at the tape end ON : REW starts at the tape end.
	S2-1	OFF	Not used	–
	S2-2	OFF	Not used	–
	S2-3	OFF	Preroll Time	S2-3 OFF OFF ON ON S2-4 OFF ON OFF ON Preroll Time 5 3 10 7 (Sec)
	S2-4	OFF		
	S3-1	ON	Emergency Enable	OFF : No warning at stop of the drum, capstan and reel. ON : Enters warning in the above condition.
	S3-2	OFF	Count Pulse Select	OFF : Counts CAP. FG pulse. ON : Counts CTL pulse.
	S3-3	OFF	Not used	–
	S3-4	OFF	Not used	–
INTERFACE	S1-1	OFF	Program Change SW	JVC/BVE-800 (ON: Others)
	S1-2	OFF	Program Change SW	Not used
	S1-3	OFF	Program Change SW	Not used
	S1-4	OFF	Program Change SW	JVC (NO: Others)
	S2-1	OFF	Invert SW	for the factory use
	S2-2	OFF	Not used	–
	LAMP 1	OFF		Lights up when CPU irregularly operates.
2nd REG.	S1	OFF (Normal)	Emergency Roll	ON : Wind the loose tape to the reel.

3.1 POWER SWITCHING REGULATOR CIRCUIT

Notes:

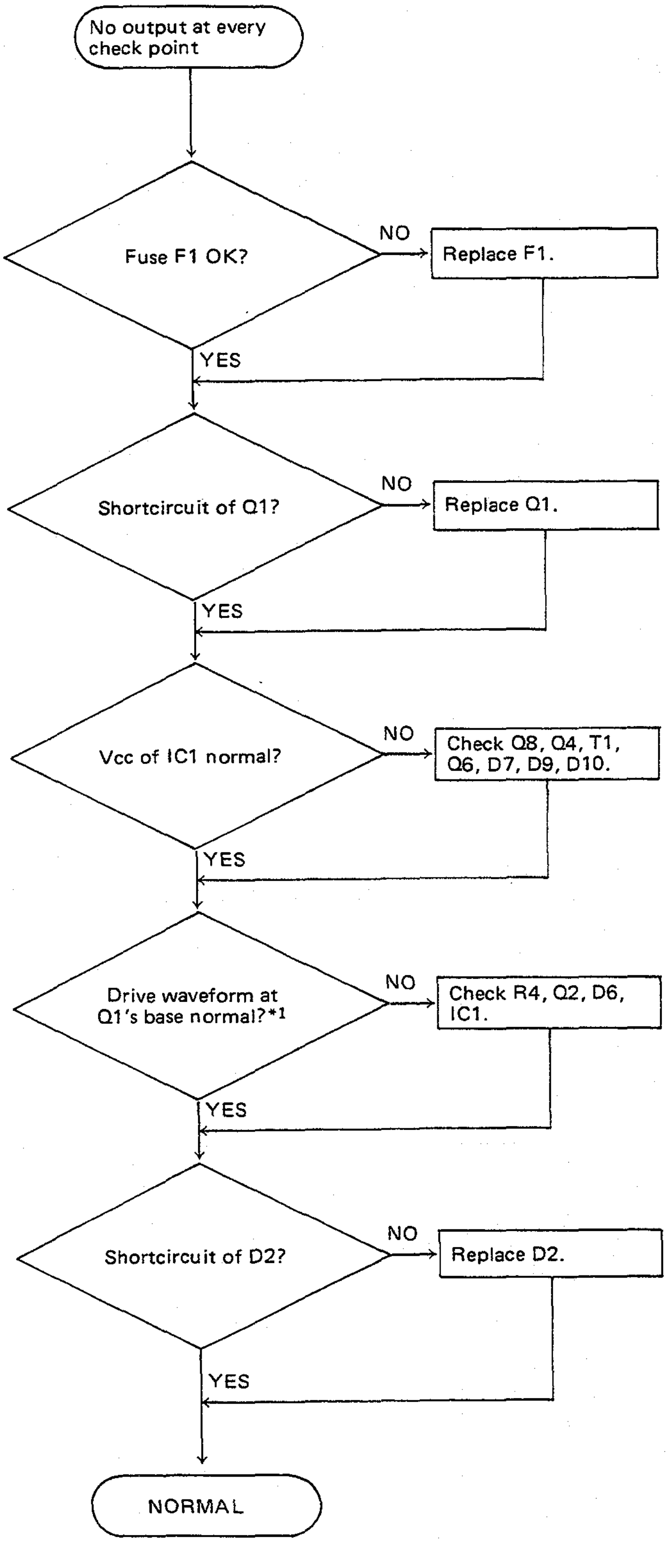
1. If this power unit is operated without load, not only operation is unstable but also any adjustment cannot be performed. Therefore, completely set the whole units and connect all wirings before proceeding to adjust these items.
2. For repairing this unit, refer to the following procedure.
3. The driving transistor is on the primary circuit. Pay attention to the silicon rubber sheet not to damage it.
4. For the item No. 1 of the following, it was precisely adjusted at the factory. When it is necessary to perform this adjustment owing to unavoidable circumstances, prepare a variable voltage transformer.

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
1	AC IN Voltage Threshold	SCR2, Anode (PHC1 pin ①, E)	VR1	155 V AC IN	STOP	1) Turn VR1 fully counterclockwise in the state of POWER OFF. 2) Set AC input voltage to 155 V and turn on the power. 3) Checking SCR2's anode voltage (PHC1 pin ①), turn VR1 clockwise slowly and stop it at the point where SCR2 turns on. • **Checkup:** 4) Turn off the power and set the AC IN voltage to 120 V. 5) Turn on the power again and gradually raise the voltage to confirm that SCR2 turns on with input voltage of 150–160V AC. SCR2 anode voltage: ON . . . . . 0.72 V OFF . . . 2.2 V When SCR2 does not turn on in the above condition, re-adjust the above steps 1) through 3).
2	13.3 V Adj.	Pins ①, ② – ④, ⑤ of connector CN2	VR2	AC IN 220–240 V	STOP	1) Adjust VR2 to obtain 13.5 V.
3	30 V Adj.	Pins ①, ② – ④, ⑤ of connector CN1	VR3	AC IN 220–240 V	STOP	1) Adjust VR3 to obtain 30.3 V.

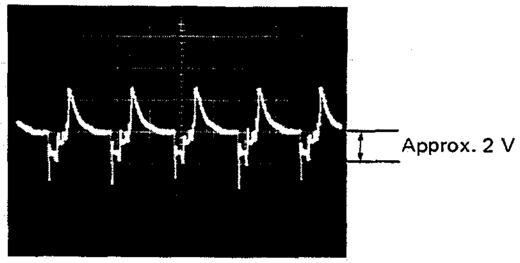

10
1
8
1
CN6 (CN2)
CN1 (CN3)
CN2 (CN4)
VR 2 +13.3V ADJ
IC 2
VR3 +30V ADJ
IC 3
IC 1
Q5
D25
D17
Q6
T3-13
T3-14
VR 1 AC IN VOLTAGE THRESHOLD
B C E
Q3
3 1 3 1
PHC2
PHC1
4 6 4 6
R11
SCR1
D1
Q1
R5
(CN1) CN5
8 4 SW REG

- **Troubleshooting**

1. No output voltage at every check point

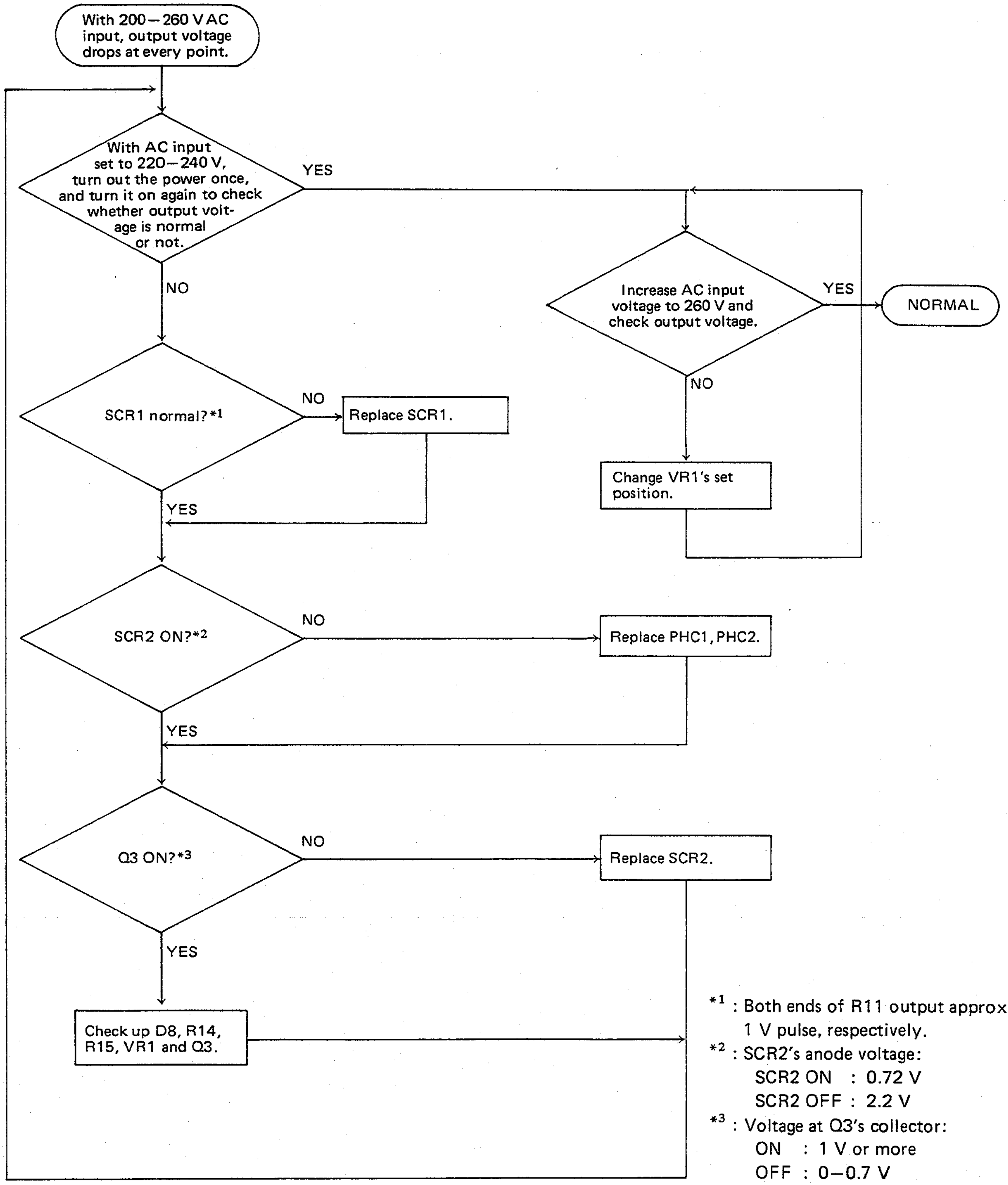

No output at every check point
Fuse F1 OK?
NO
Replace F1.
YES
Shortcircuit of Q1?
NO
Replace Q1.
YES
Vcc of IC1 normal?
NO
Check Q8, Q4, T1, Q6, D7, D9, D10.
YES
Drive waveform at Q1's base normal?*1
NO
Check R4, Q2, D6, IC1.
YES
Shortcircuit of D2?
NO
Replace D2.
YES
NORMAL

*1: Q1's VBE waveform (measured at both ends of R5)



(2 V/DIV, 10 μsec/DIV)

2. With 200–260 V AC input, output voltage drops at every check point.


With 200–260 V AC input, output voltage drops at every point.
With AC input set to 220–240 V, turn out the power once, and turn it on again to check whether output voltage is normal or not.
YES
NO
Increase AC input voltage to 260 V and check output voltage.
YES
NORMAL
NO
Change VR1's set position.
SCR1 normal?*1
NO
Replace SCR1.
YES
SCR2 ON?*2
NO
Replace PHC1, PHC2.
YES
Q3 ON?*3
NO
Replace SCR2.
YES
Check up D8, R14, R15, VR1 and Q3.

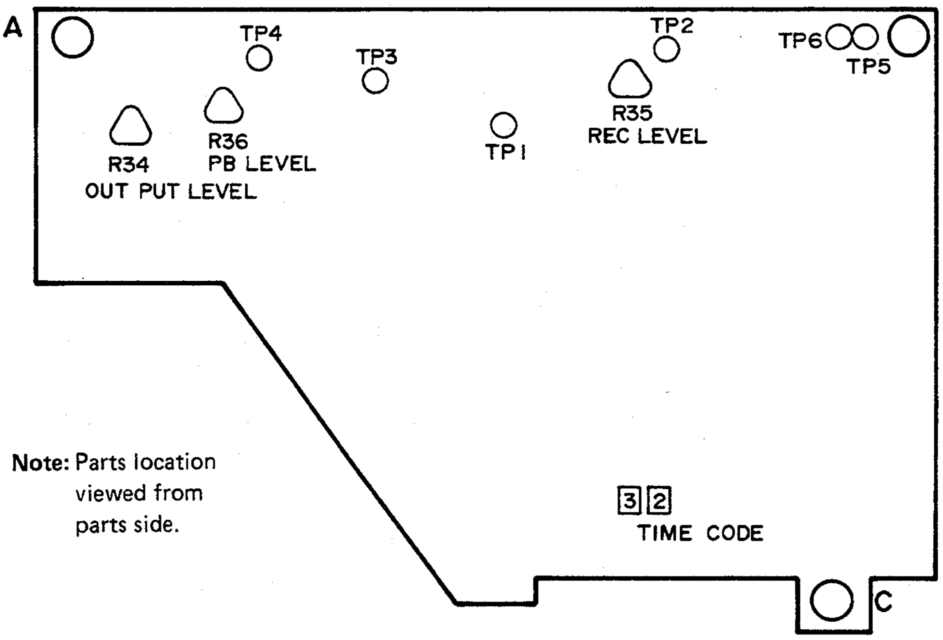
*1 : Both ends of R11 output approx. 1 V pulse, respectively.

*2 : SCR2's anode voltage:
SCR2 ON : 0.72 V
SCR2 OFF : 2.2 V

*3 : Voltage at Q3's collector:
ON : 1 V or more
OFF : 0–0.7 V

3.2 TIME CODE CIRCUIT

For improving serviceability, remove the nylon rivet used at part (A), rotate the circuit board 90 degrees centered on (B), then fasten hole (C) with a nylon rivet.

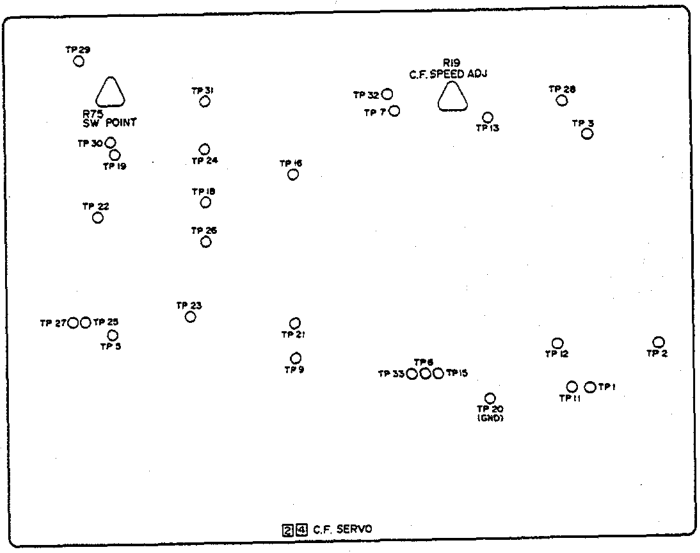


Note: Parts location viewed from parts side.

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
1	Time Code					**Before this adjustment, the AD head height and azimuth adjustments should be completed.**
		TP3 (T/C)	R36 (T/C)	MOCE-2HS	PLAY	1) In the mode of MOCE-2HS being played back, connect the oscilloscope to TP3 and adjust R36 so that the voltage at TP3 is 2 Vp-p.
		TP4 (T/C)	R34 (T/C)			2) Connect the oscilloscope to TP4 and adjust R34 so that the voltage at TP4 is 1.55 Vp-p.
						3) Exchange the recording tape with such as the KCS-20K.
		TP3 (T/C)	R35 (T/C)	Sine wave (1.2kHz/0dBs) 0.775 Vrms	REC ↓ PLAY	4) Input a sine wave to TC IN terminal and record it on the tape. During the tape is played back, connect the oscilloscope to TP3 and adjust the recording level by R35 so that the output voltage at TP3 is 2.0 ± 0.2 Vp-p. Perform this operation repeatedly until this value is met.

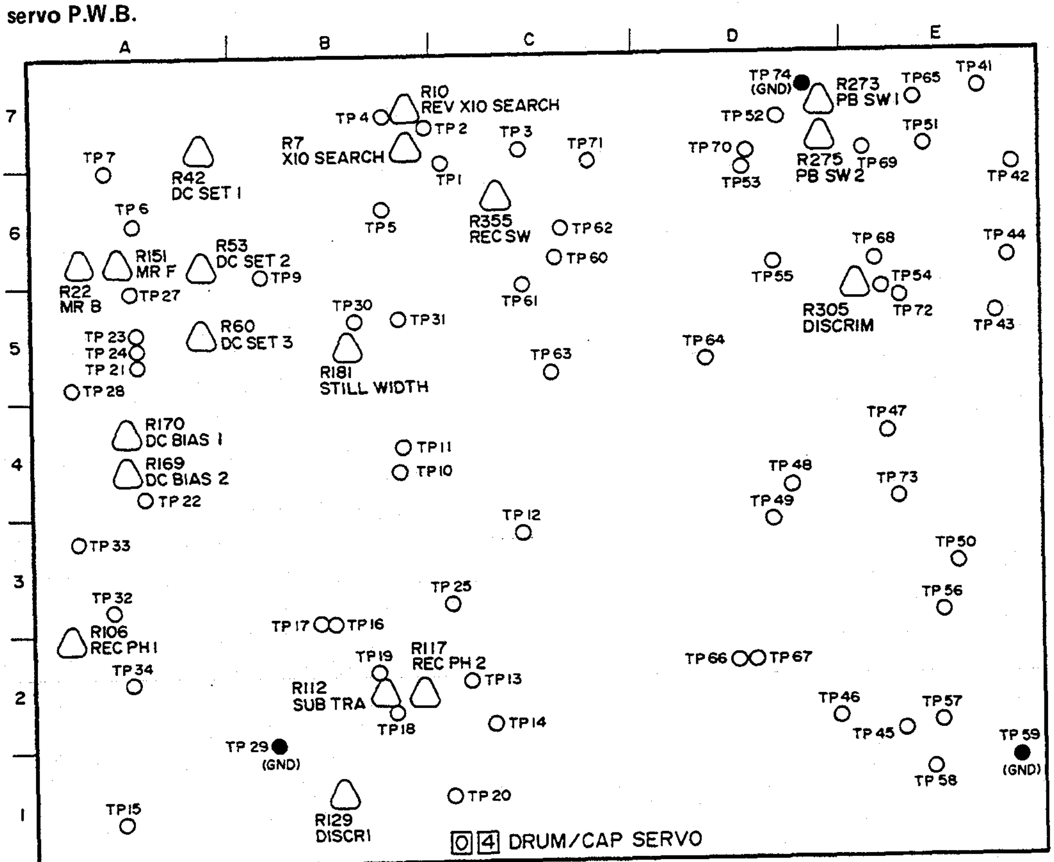
3.3 SERVO CIRCUIT

Colour frame servo P.W.B.


TP 29
R75
SW POINT
TP 31
TP 32
TP 7
R19
C.F. SPEED ADJ
TP 13
TP 28
TP 3
TP 30
TP 19
TP 24
TP 16
TP 22
TP 18
TP 26
TP 23
TP 27
TP 25
TP 5
TP 21
TP 9
TP 6
TP 33
TP 15
TP 20
(GND)
TP 12
TP 2
TP 11
TP 1
2 4 C.F. SERVO

Note: Parts location viewed from the pattern side.

Drum/capstan servo P.W.B.


A
B
C
D
E
7
6
5
4
3
2
1
TP 7
R42
DC SET I
TP 4
R10
REV X10 SEARCH
TP 2
R7
X10 SEARCH
TP 1
TP 3
TP 71
TP 74
(GND)
R273
PB SW 1
TP 65
TP 41
TP 52
TP 51
TP 70
TP 53
R275
PB SW 2
TP 69
TP 42
TP 6
TP 5
R355
REC SW
TP 62
TP 60
TP 61
R151
MR F
R53
DC SET 2
TP 9
R22
MR B
TP 27
TP 30
TP 31
TP 68
TP 44
TP 55
TP 54
R305
DISCRIM
TP 72
TP 43
TP 23
TP 24
TP 21
TP 28
R60
DC SET 3
R181
STILL WIDTH
TP 63
TP 64
TP 47
R170
DC BIAS 1
R169
DC BIAS 2
TP 22
TP 11
TP 10
TP 48
TP 49
TP 73
TP 12
TP 33
TP 50
TP 32
R106
REC PH 1
TP 25
TP 17
TP 16
TP 56
TP 19
R117
REC PH 2
TP 13
TP 66
TP 67
TP 34
R112
SUB TRA
TP 18
TP 14
TP 46
TP 45
TP 57
TP 29
(GND)
TP 59
(GND)
TP 58
TP 15
R129
DISCRI
TP 20
0 4 DRUM/CAP SERVO

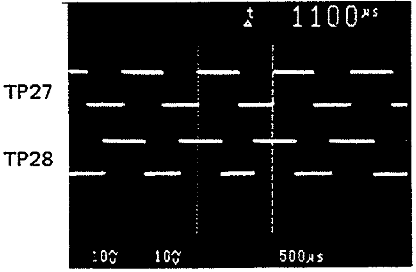
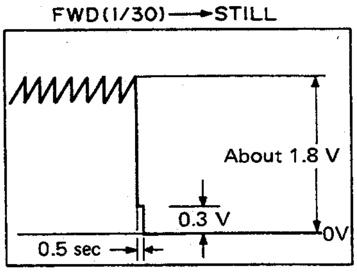
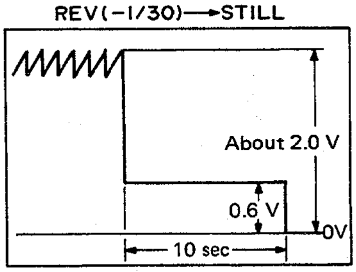
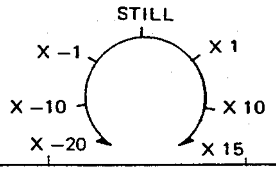
Note: Parts location viewed from the pattern side.

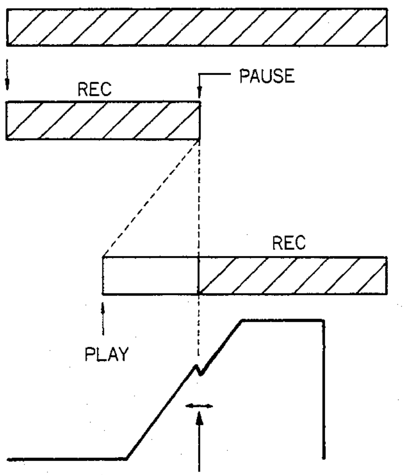
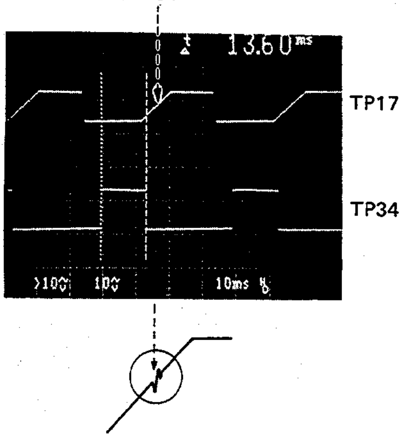
Testpoint & pot address

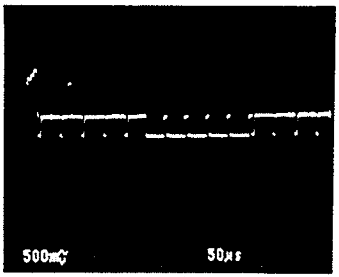
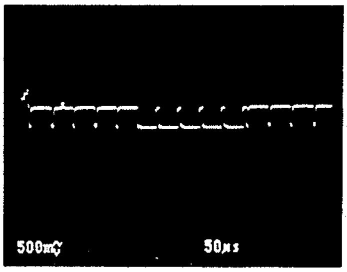
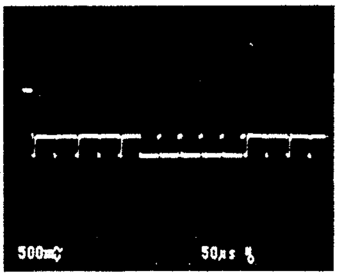
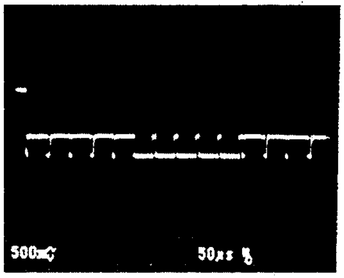
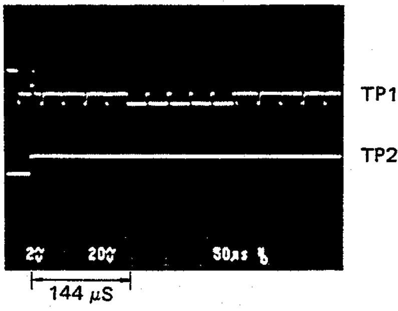
TP	1	2	3	4	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Ad's	C 7	B 7	C 7	B 7	B 6	A 6	A 7	B 6	B 4	B 4	C 3	C 2	C 2	A 1	B 3	B 3	B 2	B 2	C 1	A 5	A 4	A 5	A 5
TP	25	27	28	29	30	31	32	33	34	41	42	43	44	45	46	47	48	49	50	51	52		
Ad's	C 3	A 5	A 5	B 2	B 5	B 5	A 3	A 3	A 2	E 7	E 6	E 5	E 6	E 2	D 2	E 4	D 4	D 3	E 3	E 7	D 7		
TP	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	
Ad's	D 6	E 5	D 6	E 3	E 2	E 1	E 1	C 6	C 5	C 6	C 5	D 5	E 7	D 2	D 2	E 6	E 7	D 7	C 7	E 5	E 4	D 7	

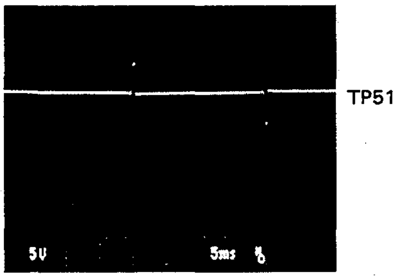
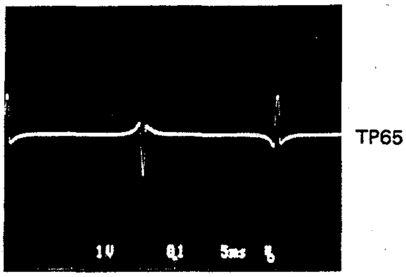
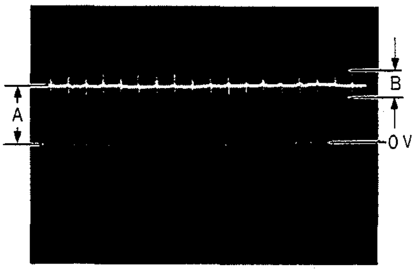
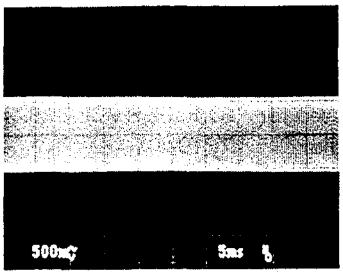
R	7	10	22	42	53	60	106	112	117	129	151	169	170	181	273	275	305	355
Ad's	B 7	B 7	A 6	A 7	A 6	A 5	A 2	B 2	B 2	B 1	A 6	A 4	A 4	B 5	D 7	D 7	E 5	C 6

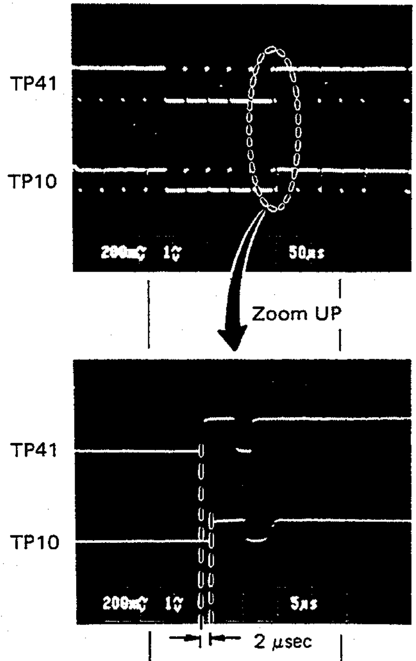
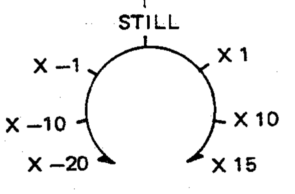
Note: Before performing the following adjustment, confirm 2.3.17 Drum pulse pickup head (±1.1 ~ ±1.3 V/TP65), it easily enters warning mode if the level is out of the range.

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
1	MR Amp. Bias	TP27, TP28 (D/C SERVO) [TP27 A5 TP28 A5] 	R22, R151 (D/C SERVO) [R22 A6 R151 A6]	MO-22HS (Stairstep)	PLAY	1) Adjust the duty cycle of the square wave to 50% (T = 1.1 msec). 2) Perform adjustment of R151 in the same manner. * If the adjustment is not correct, the servo is inaccurate in a mode other than PLAY/REC.
2	Cap. FG	TP10 (D/C SERVO) [TP10 B4]	R60 (D/C SERVO) [R60 A5]	Color bar	REC	1) In REC mode, adjust the duty cycle of the signal at TP10 to 50% (T = 2.2 msec).
3	Cap.Discri	TP19 (D/C SERVO) TP18 (D/C SERVO) [TP19 B2 TP18 B2]	R129 (D/C SERVO) [R129 B2]	Color bar	REC	1) Connect the digital voltmeter to TP19 and adjust the voltage at TP19 to 5.25 ± 0.05 V DC. At this time, connect the digital voltmeter to TP18 and check that the voltage at TP18 is 5.3 ± 0.15 V DC.
4	Drum Discri.	TP68 (D/C SERVO) TP73 (D/C SERVO) [TP68 E6 TP73 E4]	R305 (D/C SERVO) – [R305 E5]	Color bar	REC	1) Connect the digital voltmeter to TP68 and adjust R305 so that the voltage at TP68 is 5.5 ± 0.1 V DC. 2) Connect the digital voltmeter to TP73 and check that the voltage at TP73 is 5.5 ± 0.2 V DC. 3) Next, confirm that the average value of the signal ripple at TP68 is less than 30 mVp-p.
5	DC BIAS	TP15 (D/C SERVO) TP74 (D/C SERVO) [TP15 A1 TP74 D7]   	R170 (D/C SERVO) R169 (D/C SERVO) [R170 A4 R169 A4]	–	FWD (1/30) ↓ STILL REV (−1/30) ↓ STILL	1) Load a recorded tape and connect an oscilloscope (DC range) between TP15 and TP74 GND. 2) Adjust R170 so that it is 0.3V±0.03VDC when switched to the still mode from FWD (1/30). (Maintained about 0.5 sec.) 3) Next, adjust R169 so that it is 0.6±0.06V DC when switching to the Still mode from REV (−1/30). (Maintained about 10 sec.) **Note:** TP74 shall be the only oscilloscope ground. * If the search dial is turned slowly, a 0.3 V level cannot be obtained. Therefore, turn it as fast as possible. If the adjustment is not correct, the capstan motor does not stop properly in Still mode from the others. * The lowest FWD/REV speed can be obtained by 1/30 turning the dial.

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
6	CTL AMP OFFSET	TP7 (D/C SERVO) [TP7 A7]	R42 (D/C SERVO) [R42 A7]	–	STILL	1) Connect the oscilloscope to TP7 and adjust R42 so that DC element (center of ripple) is 0 ± 25 mV DC. 2) Confirm that the ripple voltage is less than 100 mVp-p at the time.
7	Capstan REC phase-1	TP17 (D/C SERVO) TP34 (D/C SERVO) [TP17 B3 TP34 A2] Recording Monoscope  Fluctuation should be within 1.5 msec p-p.	R106 (D/C SERVO) [R106 A2]	Monoscope	REC REC ↓ PAUSE ↓ PLAY ↓ PAUSE ↓ PLAY	1) Connect a 10 : 1 probe of the oscilloscope to TP17, TP34 and record the monoscope signal. 2) Adjust R106 so that the TP34 pulse width is 13.6 msec in the REC mode. 3) In the course of recording the monoscope signal again on the previously recorded tape, press the REC, PAUSE, PLAY buttons in succession. 4) About 2.4 sec after the pre-roll, the mode changes from PLAY to REC. At this time, confirm that fluctuation of TP17's sampling pulse is within 1.5 msec p-p. Sampling pulse 
8	Cap. FG Amp. Bias	TP9 (D/C SERVO) [TP9 B5]	R53 (D/C SERVO) [R53 A6]	–	STILL	1) In the Still mode, adjust the voltage to 7.0 ± 0.2 V DC at TP9.
9	Still Width	TP30 (D/C SERVO) [TP30 B5]	R181 (D/C SERVO) [R181 B5]	–	STOP	1) Connect the digital voltmeter to TP30 and adjust the voltage to 3.000 ± 0.005 V DC. * If this adjustment is not correct, there is a speed change at the speed of 1/30.

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
10	P.B. Switching Point	VIDEO OUT TP10 (Y/C) [TP10 A6]	R275 (+slope) (D/C SERVO) R273 (−slope) (D/C SERVO) [R275 D7 R273 D7] Plus (+) slope waveform 	MO-22HS (Stairstep)	PLAY	1) Play back the stairstep segment of the MO-22HS. 2) Trigger the TP71 (D/C SERVO) and observe the video output signal at TP10. 3) Adjust R275 for the plus (+) slope to set the point to 2.75H before the V. sync signal. 4) Adjust R273 for the minus (−) slope to set the point in the same maner. Minus (−) slope waveform 
11	REC Switching Point	VIDEO OUT	R355 (+slope) (D/C SERVO) R273 (−slope) (D/C SERVO) [R355 C6 R273 D7] Plus (+) slope waveform 	Mono scope	REC	1) Change the tape and input the mono scope and set the unit for the REC mode. 2) Set SYNC SW to VIDEO. 3) Set it to 2.75H with R355. 4) Next, adjust R273 by changing the trigger polarity to a (−) slope and set it to 2.75H before V. sync. Minus (−) slope waveform 
12	Video Switching Point	VIDEO OUT TP10 (Y/C) [TP10 A6] TP27 (C.F. SERVO)	R75 (C.F. SERVO)	Mono scope	REC ↓ PLAY	Use a KCS-20K tape for the following adjustment. 1) Record a mono scope signal and play it back. 2) Adjust R75 to obtain 144 µs. 

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
13	Drum Pulse	TP51, TP65 (D/C SERVO) [TP51 E7 TP65 E7]	–	Color bar 	REC	1) Connect the oscilloscope between TP65 and TP74 GND. Trigger the oscilloscope internally. Confirm the waveform as shown below.  2) Connect the oscilloscope to TP51 and check that the pulse saturates in its tip, providing sufficient brightness. 3) In this situation, check that the voltage at TP51 is 6.4 ± 0.6 V DC, 25 Hz (40 msec width).
14	Drum Motor Current Waveform	TP58 TP59 (GND) (D/C SERVO) [TP58 E1 TP59 E1]	–	Color bar	REC	1) Drum motor drive current: A : Offset DC : 50–250 mV B : Ripple AC: Less than 300 mVp-p **Note:** Ground the oscilloscope only to TP59.  (100 mV/DIV, 5 ms/DIV)
15	Drum FG	TP55 (D/C SERVO) [TP55 D6]	–	Color bar	REC	1) Connect the oscilloscope to TP55. 2) Check that the voltage is more than 0.6 Vp-p and its ripple factor is less than 10%. 

<table>
<tr><th>No.</th><th>Item</th><th>Check Point</th><th>Adjustment Parts</th><th>Signal</th><th>Mode</th><th>Description</th></tr>
<tr><td rowspan="2">16</td><td>SUB Tracking</td><td>VIDEO IN:
TP41
(D/C SERVO)
VIDEO OUT:
TP10
(Y/C OUT)
[TP41 E7
TP10 A6]</td><td>R112 B2
(D/C SERVO)</td><td rowspan="2">Color bar
 </td><td rowspan="2">REC
↓
PLAY</td><td rowspan="2">1) Record the color bar signal.
2) Connect a dual trace oscilloscope to VIDEO IN and VIDEO OUT, then play back this tape.
3) Short TP64 (D/C SERVO) and GND by a shorting wire to cut off the H-PHASE.
4) Adjust R112 so that the playback output signal is delayed by 2 μsec against the input signal as shown in the picture.
5) Remove the short and connect TP25 (D/C SERVO) to +12 V by using a 1 k ohm resistance.
6) Also, adjust R117 so that a 2 μsec delay is provided.
VIDEO IN: TP41 (D/C SERVO)
VIDEO OUT: TP10 (Y/C OUT)
Trig.: TP71 (DRUM. FF)
+12 V: CN18 pin 4
* If this adjustment is not correct, an H. curve occurs during insertion. Also, this adjustment shall be performed more than 15 minutes after power is turned on and the set must have transient stability.</td></tr>
<tr><td>REC Phase</td><td>TP41 (D/C SERVO)
[TP41 E7]
TP10 (Y/C OUT)
[TP10 A6]</td><td>R117 B2
(D/C SERVO)</td></tr>
<tr><td>17</td><td>Search Speed</td><td>TP10
(D/C SERVO)
[TP10 B4]</td><td>–</td><td>–

Search dial position and speed</td><td>SEARCH</td><td>1) Connect the frequency counter to TP10 and check that the following frequencies appear in the following modes.
<table>
<tr><th colspan="2">Mode</th><th>Freq. (Hz)</th></tr>
<tr><td rowspan="4">FWD</td><td>X1/30 (Slowest)</td><td>13 – 17</td></tr>
<tr><td>X 1</td><td>450 ± 0</td></tr>
<tr><td>X 10</td><td>3825 – 4950</td></tr>
<tr><td>X 15</td><td>5850 – 7650</td></tr>
<tr><td rowspan="4">REW</td><td>X−1/30 (Slowest)</td><td>13 – 17</td></tr>
<tr><td>X − 1</td><td>447 – 453</td></tr>
<tr><td>X −10</td><td>3825 – 4950</td></tr>
<tr><td>X −20</td><td>8100 – 9900</td></tr>
</table></td></tr>
<tr><td>18</td><td>Search Speed for Color Frame</td><td>TP26
(C.F. SERVO)
TP10
(D/C SERVO)
[TP10 B4]</td><td>R19
(C.F. SERVO)</td><td>Color bar</td><td>REC
↓
PLAY</td><td>1) Record a color bar signal and play it back.
2) Connect TP26 (C.F. Servo) to +5 V by using a 1 K ohm resistor.
3) Connect the frequency counter to TP10 (D/C Servo).
4) Adjust R19 so that 427 Hz is obtained.
+5 V: 3 pin of CN1 (on C.F. Servo board)</td></tr>
</table>

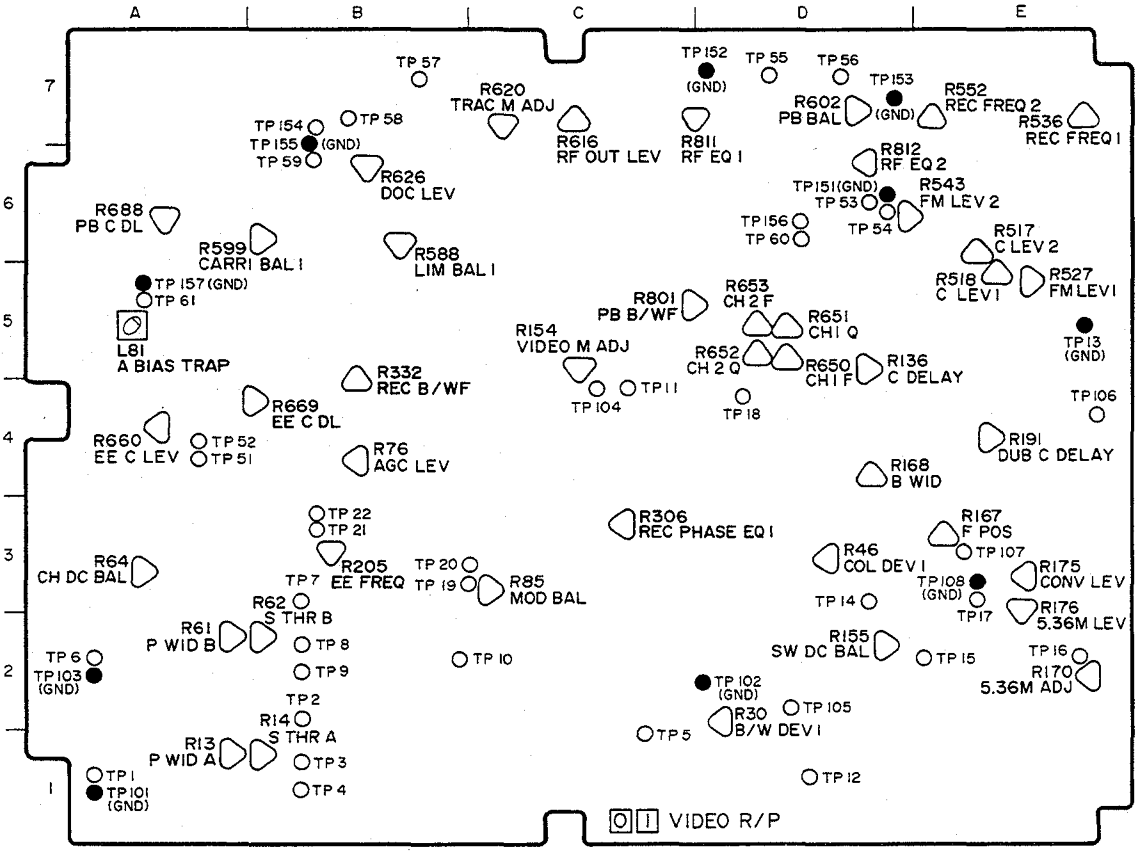
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
19	Drum Search	TP55 (D/C SERVO) [TP55 D6] TP9 (D/C SERVO) [TP9 B6]		Color bar		Input signal condition VIDEO IN: Color bar EXT SYNC IN: No signal 1) Connect the frequency counter to TP55. 2) Set SYNC SW to EXT.
			R10 (D/C SERVO)		REV ↓ STILL	3) Adjust R10 so that when mode is changed from REV to STILL, the frequency is less than 2833 Hz.
			R7 (D/C SERVO)		FWD ↓ STILL	4) Adjust R7 so that when mode is changed from FWD to STILL, the frequency is 2922H.
			R10 (D/C SERVO)		REV ↓ STILL	5) Adjust R10 so that when mode is changed from REV to STILL, the frequency is 2919Hz.
			[R10 B7 R7 B7]		FWD ↓ STILL REV ↓ STILL	6) Check that the frequency is within the following range by repeating the search dial switching to STILL several times. FWD to STILL : 2925 ± 2 Hz REV to STILL : 2919 Hz
					STILL	7) In the STILL mode, change the position of the SYNC SW to TBC and check that the frequency is 2950 Hz. 8) Set SYNC SW to VIDEO.
					FWD X10 REV X-10	9) Set VR for FWD (X10) and REV (X-10) search, then confirm that drum rotation changes in accordance with the capstan search speed as shown on the below table.

CAP FG (TP-9) (Hz)	DRUM FG (TP55) (Hz)	
	FWD X10	REV X–10
3825 – 3924	3164 – 3233	2610 – 2670
3925 – 4024	3170 – 3240	2602 – 2662
4025 – 4124	3177 – 3247	2596 – 2654
4125 – 4224	3185 – 3255	2589 – 2647
4225 – 4324	3192 – 3262	2582 – 2640
4325 – 4424	3198 – 3270	2575 – 2633
4425 – 4524	3205 – 3277	2568 – 2626
4525 – 4950	3212 – 3305	2540 – 2618

20	Tape Speed	TP10 (D/C SERVO) [TP10 B4]	–	MO-22HS	PLAY	1) Connect the frequency counter to TP10 and check that a square wave with a width of 2.2205–2.2265 msec (450 Hz) appears.

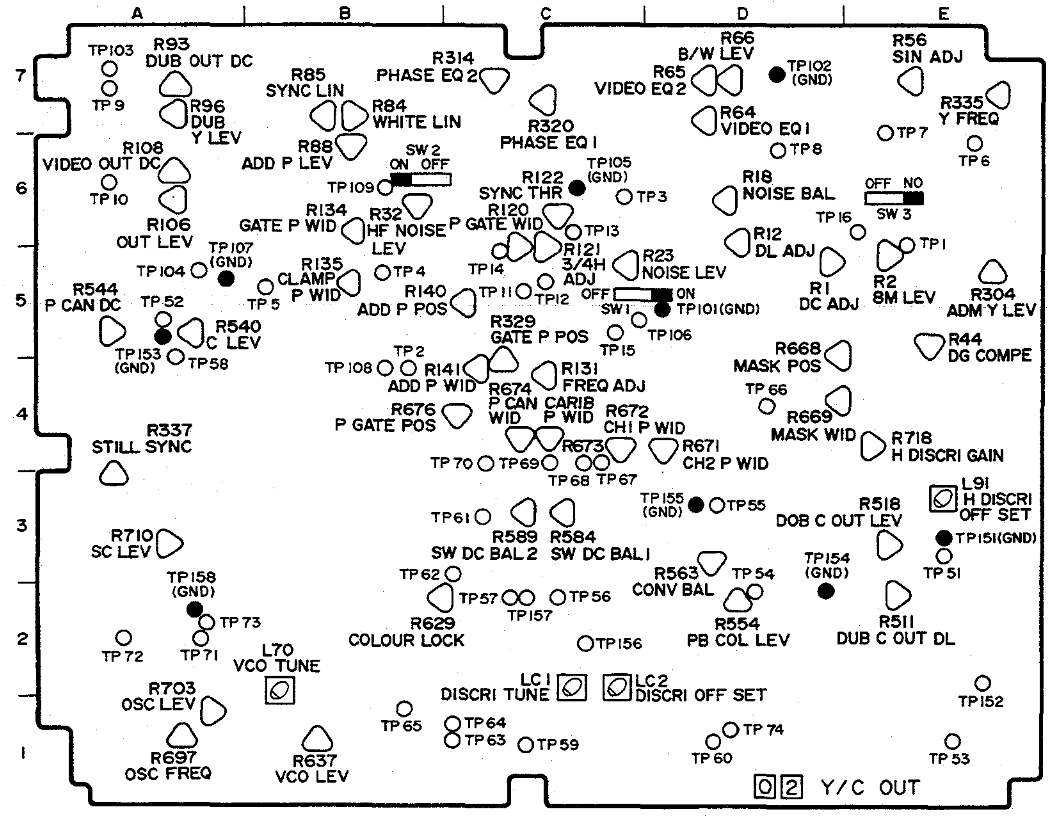
3.4 VIDEO CIRCUIT

VIDEO REC/PB P.W.B.


A
B
C
D
E
7
6
5
4
3
2
1
TP 57
R620
TRAC M ADJ
TP 152
(GND)
TP 55
TP 56
TP 153
R552
REC FREQ 2
TP 154
TP 58
TP 155 (GND)
TP 59
R616
RF OUT LEV
R811
RF EQ 1
R602
PB BAL
(GND)
R536
REC FREQ 1
R626
DOC LEV
R812
RF EQ 2
TP151(GND)
TP 53
R543
FM LEV 2
R688
PB C DL
TP 156
TP 60
TP 54
R517
C LEV 2
R599
CARRI BAL 1
R588
LIM BAL 1
R518
C LEV 1
R527
FM LEV 1
TP 157 (GND)
TP 61
R801
PB B/WF
R653
CH 2 F
R651
CH 1 Q
TP 13
(GND)
L81
A BIAS TRAP
R154
VIDEO M ADJ
R652
CH 2 Q
R650
CH 1 F
R136
C DELAY
R332
REC B/WF
TP 11
TP 104
TP 18
TP 106
R669
EE C DL
R660
EE C LEV
TP 52
TP 51
R76
AGC LEV
R191
DUB C DELAY
R168
B WID
TP 22
TP 21
R306
REC PHASE EQ 1
R167
F POS
TP 107
R64
CH DC BAL
R205
EE FREQ
TP 7
TP 20
TP 19
R85
MOD BAL
R46
COL DEV 1
TP 108
(GND)
R175
CONV LEV
TP 14
TP 17
R176
5.36M LEV
R62
S THR B
R61
P WID B
TP 8
TP 9
TP 10
R155
SW DC BAL
TP 15
TP 16
TP 6
TP 103
(GND)
R170
5.36M ADJ
TP 102
(GND)
TP 105
TP 2
R14
S THR A
R30
B/W DEV 1
R13
P WID A
TP 3
TP 4
TP 5
TP 1
TP 101
(GND)
TP 12
0 1 VIDEO R/P

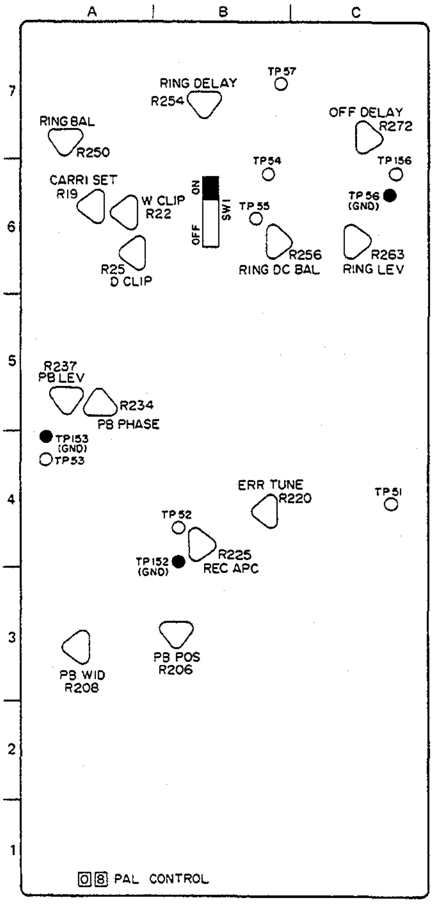
Note: Parts location viewed from parts side.

Y/C OUT P.W.B. (SW settings in the figure show the positions set at shipment.)


A
B
C
D
E
7
6
5
4
3
2
1
TP103
R93
DUB OUT DC
TP 9
R85
SYNC LIN
R314
PHASE EQ 2
R66
B/W LEV
R65
VIDEO EQ 2
TP102
(GND)
R56
SIN ADJ
R96
DUB
Y LEV
R84
WHITE LIN
R320
PHASE EQ 1
R64
VIDEO EQ 1
R335
Y FREQ
TP 7
TP 8
TP 6
R108
VIDEO OUT DC
R88
ADD P LEV
SW 2
ON OFF
TP109
TP105
(GND)
R122
SYNC THR
TP 3
R18
NOISE BAL
OFF NO
SW 3
TP 10
R134
GATE P WID
R32
HF NOISE
LEV
R120
P GATE WID
TP 13
TP 16
R106
OUT LEV
TP107
(GND)
R121
3/4H
ADJ
R23
NOISE LEV
R12
DL ADJ
TP 1
TP104
R135
CLAMP
P WID
TP 4
TP 14
R1
DC ADJ
R2
8M LEV
R304
ADM Y LEV
R544
P CAN DC
TP 52
TP 5
R140
ADD P POS
TP 11
TP12
OFF
SW1
ON
TP101(GND)
R540
C LEV
TP153
(GND)
TP58
R329
GATE P POS
TP 15
TP 106
R44
DG COMPE
TP 2
TP 108
R141
ADD P WID
R674
P CAN CARIB
WID P WID
R131
FREQ ADJ
R668
MASK POS
TP 66
R676
P GATE POS
R672
CH1 P WID
R669
MASK WID
R337
STILL SYNC
R673
R671
CH2 P WID
R718
H DISCRI GAIN
TP 70
TP69
TP68
TP67
TP155
(GND)
TP55
R518
DOB C OUT LEV
L91
H DISCRI
OFF SET
TP61
R589
SW DC BAL 2
R584
SW DC BAL 1
TP151(GND)
R710
SC LEV
TP154
(GND)
TP 51
TP158
(GND)
TP62
R563
CONV BAL
TP 54
TP 73
TP57
TP 56
TP157
R629
COLOUR LOCK
R554
PB COL LEV
R511
DUB C OUT DL
TP 72
TP 71
L70
VCO TUNE
TP156
R703
OSC LEV
LC1
DISCRI TUNE
LC2
DISCRI OFF SET
TP152
TP 65
TP 64
TP 63
TP59
TP 74
TP 60
TP 53
R697
OSC FREQ
R637
VCO LEV
0 2 Y/C OUT

Note: Parts location viewed from parts side.

PAL CTL P.W.B.


A
B
C
7
6
5
4
3
2
1
RING DELAY
R254
TP57
RING BAL
R250
OFF DELAY
R272
TP54
TP156
CARRI SET
R19
W CLIP
R22
ON
SW1
OFF
TP55
TP56 (GND)
R25
D CLIP
R256
RING DC BAL
R263
RING LEV
R237
PB LEV
R234
PB PHASE
TP153 (GND)
TP53
ERR TUNE
R220
TP51
TP52
TP152 (GND)
R225
REC APC
PB WID
R208
PB POS
R206
08 PAL CONTROL

Note: Parts location viewed from parts side.

Testpoint & pot address

• VIDEO REC/PB P.W.B.

TP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	51	52
Ad's	A 1	B 2	B 1	B 1	C 1	A 2	B 3	B 2	B 2	B 2	C 4	D 1	E 5	D 3	E 2	E 2	E 3	D 4	B 3	B 3	B 3	B 3	A 4	A 4
TP	53	54	55	56	57	58	59	60	61	101	102	103	104	105	106	107	108	151	152	153	154	155	156	157
Ad's	D 6	D 6	D 7	D 7	B 7	B 7	B 6	D 6	A 5	A 1	D 2	A 2	C 4	D 2	E 4	E 3	E 3	D 6	C 7	D 7	B 7	B 7	D 6	A 5

R	13	14	30	46	61	62	64	76	85	136	154	155	167	168	170	175	176	191	205	306	332	517	518
Ad's	A 1	B 1	D 2	D 3	A 2	B 2	A 3	B 4	C 3	D 5	C 5	D 2	E 3	D 4	E 2	E 3	E 3	E 4	B 3	C 3	B 5	E 6	E 5
R	527	536	543	552	588	599	602	616	620	626	650	651	652	653	660	669	688	801	811	812	L81		
Ad's	E 5	E 7	D 6	E 7	B 6	B 6	D 7	C 7	C 7	B 6	D 5	D 5	D 5	D 5	A 4	B 4	A 6	C 5	D 7	D 6	A 5		

• Y/C OUT P.W.B.

TP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	51	52	53	54	55	56	57	58	59	60	61	62	63
Ad's	E 6	B 4	C 6	B 5	B 5	E 6	E 7	D 6	A 7	A 6	C 5	C 5	C 6	C 5	C 5	E 6	E 3	A 5	E 1	D 2	D 3	C 2	C 2	A 5	C 1	D 1	C 3	C 3	C 1
TP	64	65	66	67	68	69	70	71	72	73	74	101	102	103	104	105	106	107	108	109	151	152	153	154	155	156	157	158	
Ad's	C 1	B 1	D 4	C 4	C 4	C 4	C 4	A 2	A 2	A 2	D 1	D 5	D 7	A 7	A 5	C 6	C 5	A 5	B 4	B 6	E 3	E 2	A 5	D 2	D 3	C 2	C 2	A 2	

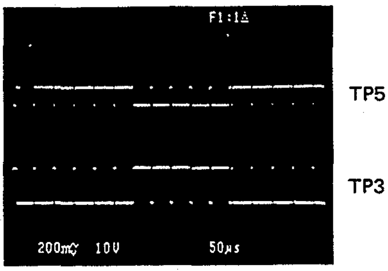
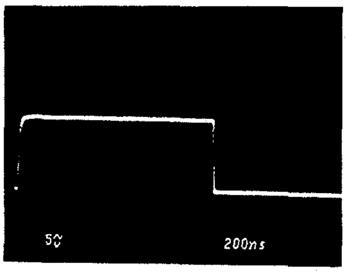
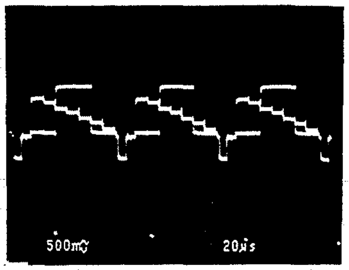
R	1	2	12	18	23	32	44	56	64	65	66	84	85	88	93	96	106	108	120	121	122	131	134	135	140	141	304	314	320
Ad's	D 5	E 5	D 6	D 6	C 5	B 6	E 5	E 7	D 7	D 7	D 7	B 7	B 7	B 6	A 7	A 7	A 6	A 6	C 6	C 6	C 6	C 4	B 6	B 5	C 5	C 4	E 5	C 7	C 7
R	329	335	337	511	518	540	544	554	563	584	589	629	637	668	669	671	672	673	674	676	697	703	710	718	L70	L91	LC1	LC2	
Ad's	C 5	E 7	A 4	E 2	E 3	A 5	A 5	D 2	D 3	C 3	C 3	B 2	B 1	D 5	D 4	D 4	C 4	C 4	C 4	C 4	A 1	A 1	A 3	E 4	B 2	E 3	C 2	C 2	

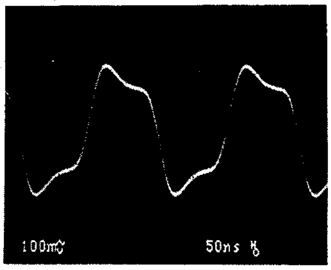
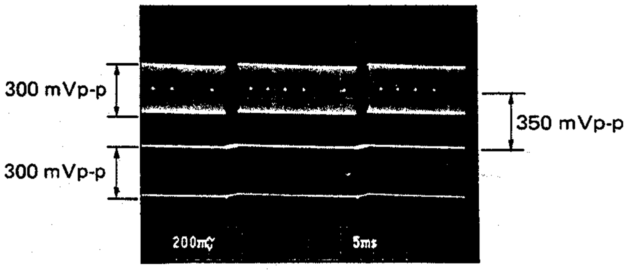
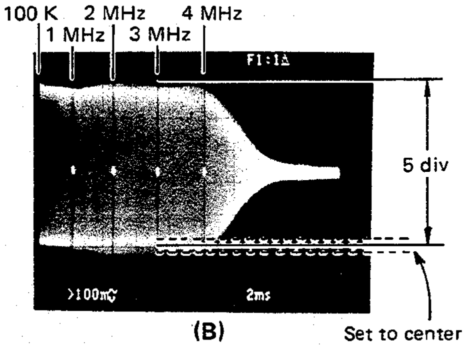
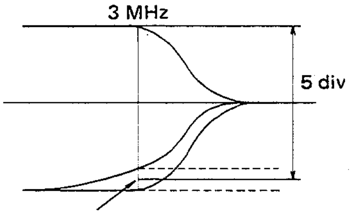
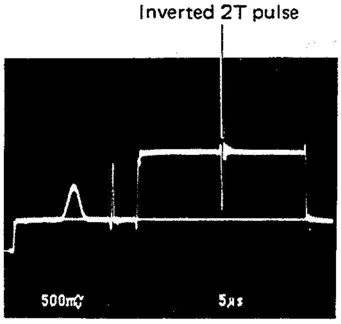
• PAL CTL P.W.B.

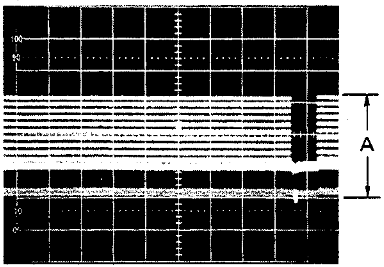
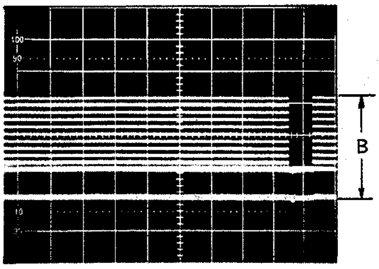
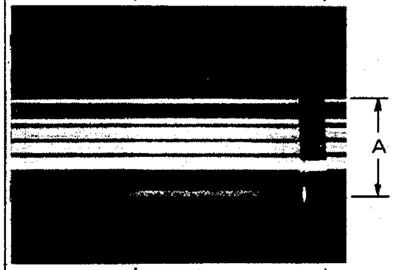
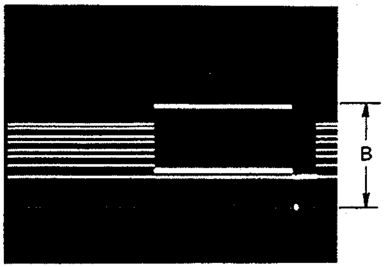
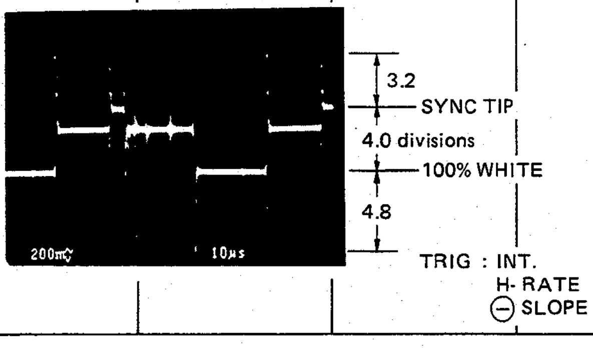
TP	51	52	53	54	55	56	57	152	153	156				
Ad's	C 4	B 4	A 4	B 6	B 6	C 6	B 7	B 4	A 4	C 6				
R	19	22	25	206	208	220	225	234	237	250	254	256	263	272
Ad's	A 6	A 6	A 6	B 3	A 3	B 4	B 4	A 5	A 5	A 7	B 7	B 6	C 6	C 7

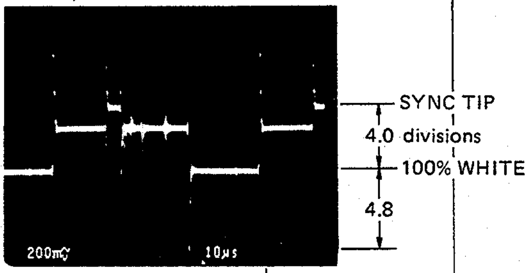
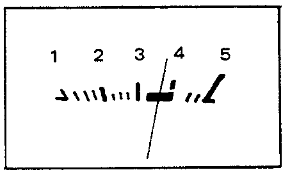
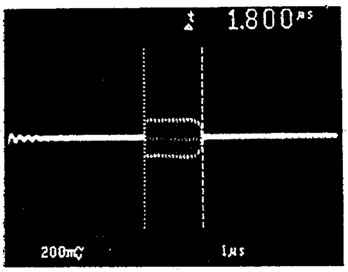
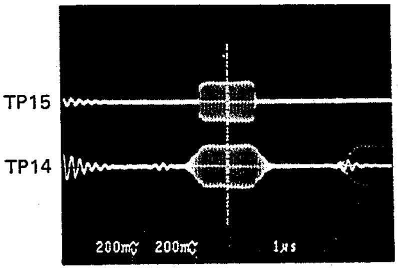
Steps of Final Frequency response Adjustment

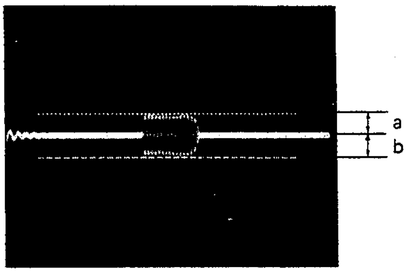
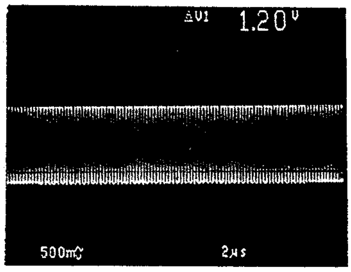
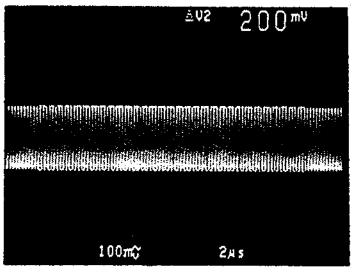
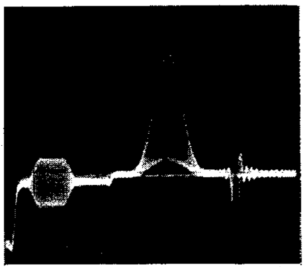
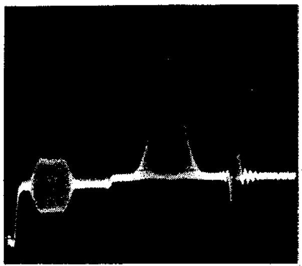
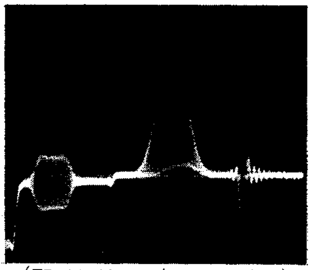
No	Check Point	Item	Note
No.25 No.26	TP55(REC/PB) TP56(REC/PB)	Head Resonance Frequency	1 M Hz=2 div 7 M Hz=5 div
No.29	TP59(REC/PB)	RF EQ 1,2	100KHz=5 div 3 M Hz=4 ±0.2div=X div
Check	TP59(REC/PB)	Channel Balance	3 M Hz= Within 0.35 db
No.31	Video Head terminal	REC f.response ⇦	1 M Hz=5 div 5.5 M Hz=2.5 ~4.5 div
No.32	Video Head terminal	REC FM level 45mA ⇧	Repeat adjustment
Check	TP59(REC/PB)	REC ⇨ PLAY NG ⇨ OK	100kHz=5 div 3 M Hz=X ±0.2 div
No.60	TP9 (Y/C)	Video EQ 1	100kHz=5 div 3 M Hz=4.2 ±0.2 div =Y div
Check	TP9 (Y/C)	Channel Balance	3 M Hz= Within 0.5 db
No.89	TP10(Y/C)	OFF delay	20T Pulse flat
Check	TP9 (Y/C)	MO-21HSB PB	100kHz=5 div 3 M Hz=Y ±0.3 div
		E N D	

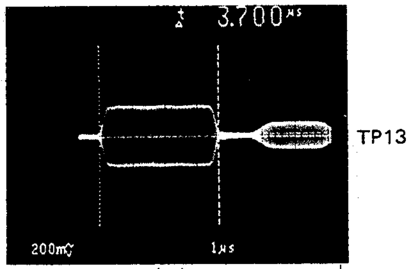
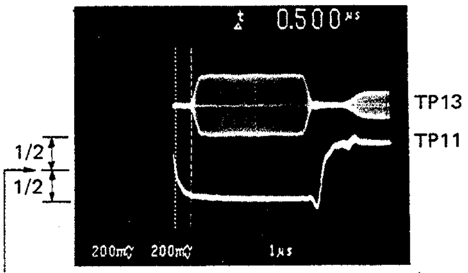
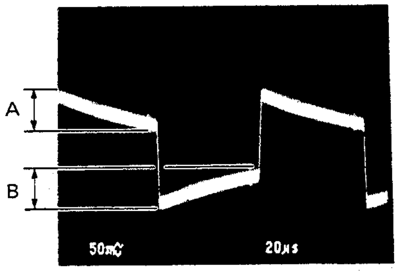
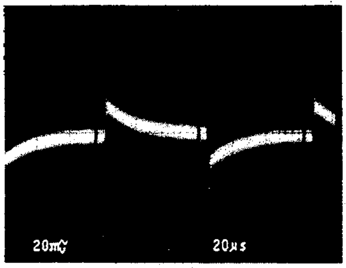
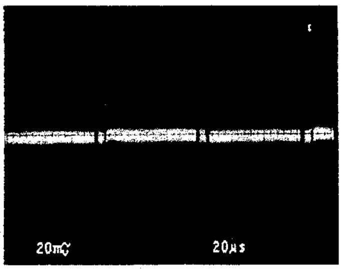
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
1	Video Input Sync. Sepa. Adj.	TP5 (REC/PB) TP3 (REC/PB) [TP5 C1 TP3 B1]	R14 (REC/PB) [R14 B1] 	Color bar	E-E	1) Short between TP1 and TP101 on the REC/PB board. Adjust R14 so that the equalizing pulse portion is correctly output at TP3. 2) Confirm that waveform around V. sync. is not wavy at TP5. If not, adjust R14 to correct the wavy waveform. 3) Open between TP1 and TP101 on the REC/PB board.
2	Video Input HD Pulse Width Adj.	TP2 (REC/PB) [TP2 B1]	R13 (REC/PB) [R13 A1]	Color bar	E-E	1) Adjust R13 so that the pulse width is 1.0 ± 0.01 μsec. 
3	AGC Level	TP11 (REC/PB) [TP11 C4]	R76 (REC/PB) [R76 B4]	Color bar	E-E	1) Set the VIDEO LEVEL VR to the center click position, then turn the VIDEO AGC switch ON and OFF alternately, and adjust R76 so that variation in level is within ±5% thereupon. 
4	Carrier Adj.	TP18 (REC/PB) [TP18 D4]	R19 (PAL CTL)	No signal	E-E	1) Turn R25 (DARK CLIP) and R22 (WHITE CLIP) on the PAL CTL board fully clockwise and counterclockwise, respectively. 2) Connect the frequency counter to TP18 and adjust R19 so that 4800 kHz ± 20 kHz is obtained.

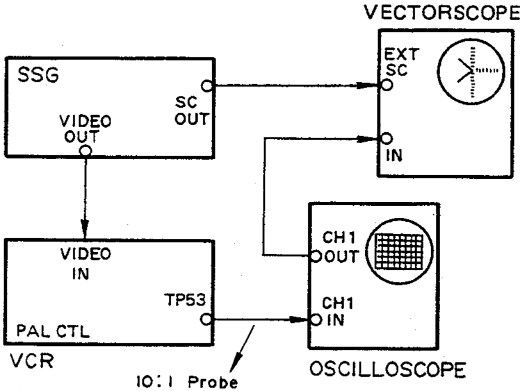
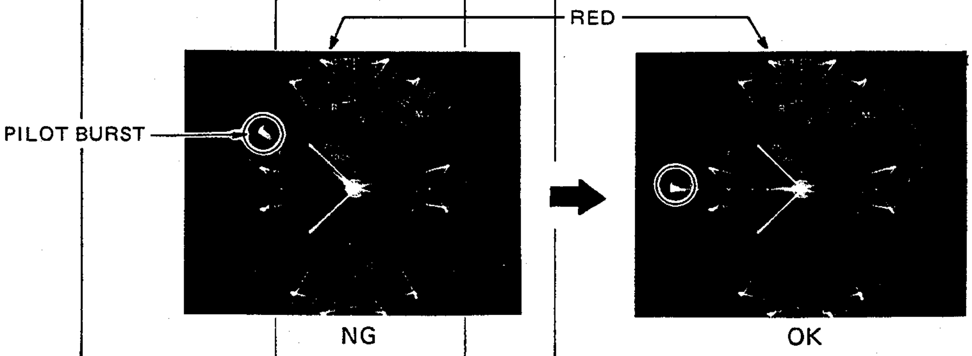
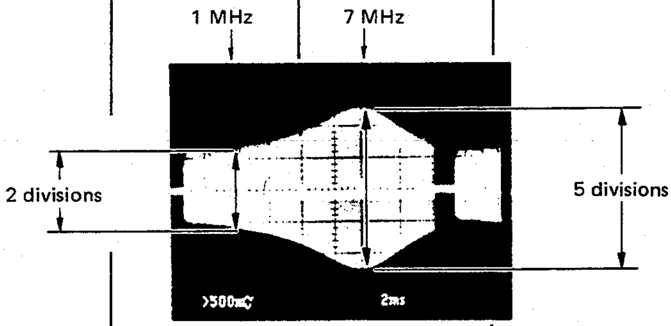
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
5	MOD. Balance	TP18 (REC/PB) [TP18 D4]	R85 (REC/PB) [R85 C3]	No signal	E-E	1) Adjust R85 so that the waveform is symmetrical in respect to the time axis. 
6	E-E Frequency Response  (A)  (B)	TP59 (REC/PB) [TP59 B6]	R205 (REC/PB) [R205 B3]	Color sweep signal (0.1 and 3 MHz markers)	E-E (Mode: B/W)	1) Set a color sweep signal output for the waveform as shown in Fig. (A). 2) Turn R332 (REC/PB) fully counterclockwise (viewed from the parts side). 3) Set for the B/W mode. 4) Adjust the oscilloscope gain so that the 100 kHz marker signal amplitude becomes 5 divisions on the oscilloscope. 5) At this time, adjust R205 so that 3 MHz marker level is 5 ± 0.05 divisions at the center. 6) After completion of the above adjustments, proceed to perform the following item 34 REC B/W Frequency Response.  Set to the center of light color part on the waveform of 3 MHz marker.
7	REC Phase EQ1	TP59 (REC/PB) [TP59 B6]	R306 (REC/PB) [R306 C3]	20T pulse signal	E-E (Mode: Color)	1) Adjust R306 so that the overshooting level and pre-shooting level at inverted 2T pulse are same. 

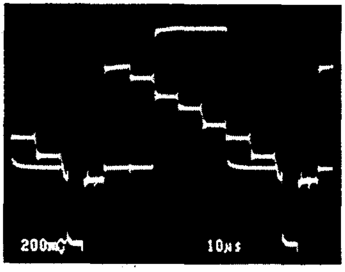
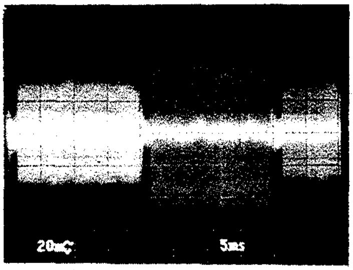
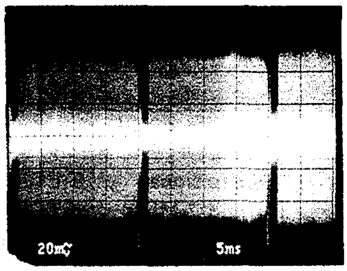
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
8	Deviation (B/W)	TP59 (REC/PB) [TP59 B6]	R30 (REC/PB) [R30 D2]	Stairstep MO-22HS (Stairstep)	(Mode: B/W) PLAY ↓ E-E ↓ PLAY ↓ E-E	1) Supply a stairstep signal to VIDEO IN. 2) Connect the osciooscope to TP59. 3) Adjust R30 so that the playback waveform level of MO-22HS (Stairstep) alignment tape becomes the same as level of EE mode (Stairstep).
		 MO-22HS (PLAY)	A = B	 E-E (When playing it back, pulsh to REC botton.)		
9	Deviation (Color)	TP59 (REC/PB) [TP59 B6]	R46 (REC/PB) [R46 D3]	Color bar MO-21HSB (Color bar)	(Mode: Color) PLAY ↓ E-E ↓ PLAY ↓ E-E	1) Supply a color bar signal to VIDEO IN. 2) Connect the oscilloscope to TP59. 3) Adjust R46 so that the playback waveform level of MO-21HSB (Color bar) alignment tape becomes the same as level of EE mode (Color bar).
		 MO-21HSB (PLAY)	A = B	 E-E (When playing it back, push to REC botton.)		
10	Dark Clip	TP10 (REC/PB) [TP10 B2]	R25 (PAL CTL) [R25 A6]	20T pulse or Color bar (100% white)	E-E (Mode: Color)	1) Make short circuit between TP19 and TP20. 2) With color bar signal being input, adjust the oscilloscope's triggering to obtain the waveform as shown in the figure. 3) Adjust the oscilloscope gain so that 4 divisions on the screen exist between the center of the sync tip and 100% white level. 4) Adjust R25 and set the level from sync tip to dark clip (upper peak) to 3.2 divisions (180%).
		 				

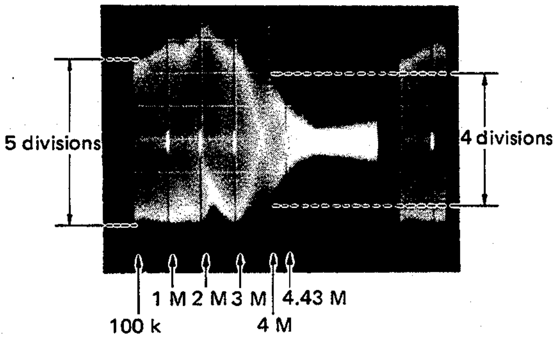
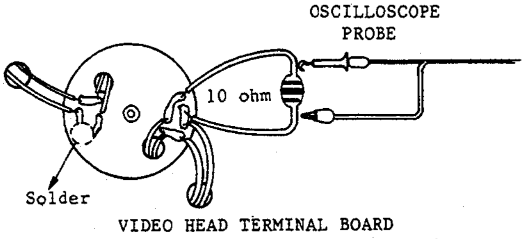
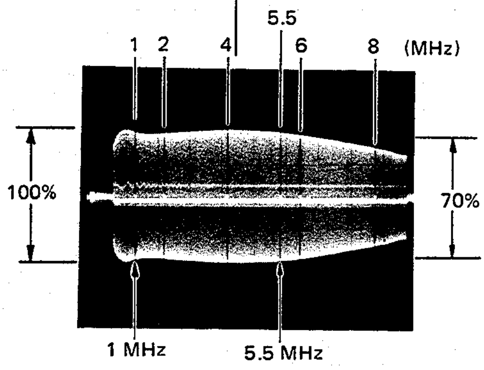
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
11	White Clip	TP10 (REC/PB) [TP10 B2]	R22 (PAL CTL) [R22 A6] 	20T pulse or Color bar (100% white) TRIG : INT. H- RATE ⊖ SLOPE	E-E (Mode: Color)	(Continued from page 3-19) 4) Next, turn the oscilloscope up/down position control and adjust R22 so that the level from a 100% white level to white clip to 4.8 divisions (220%). 5) Return to normal condition (open the test point). **Note:** Sometimes the clip level cannot be obtained depending on the kind of color bar signal, which is caused by a dull signal rise characteristic (pulse characteristic). If this occurs, use a 20T signal.
12	Video Meter Adj.	Video Meter	R154 (REC/PB) [R154 C5]	Color bar	E-E	1) Adjust R154 so that the video meter points to the center of the green zone as viewed from front. 
13	Local Osc. Adj.	TP16 (REC/PB) [TP16 E2]	R170 (REC/PB) [R170 E2]	Color bar	E-E	1) Connect the frequency counter to TP16 and adjust R170 so that the frequency is 5,357,447 ± 10 Hz.
14	REC Gated Burst Width Adj.	TP15 (REC/PB) [TP15 E2]	R168 (REC/PB) [R168 D4]	Color bar	E-E	1) Adjust R168 so that the width of the burst at TP15 is 1.80 µsec. (Apply external trigger from TP2 [REC/PB]). 
15	REC Gated Burst Position Adj.	TP15, TP14 (REC/PB) [TP15 E2 TP14 D3]	R167 (REC/PB) [R167 E3] 	Color bar	E-E	1) Adjust R167 so that the center of the burst at TP15 matches with the center within ±0.1 µsec of the burst at TP14. (Apply external trigger from TP2 [REC/PB]).

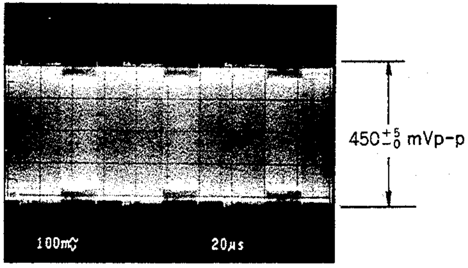
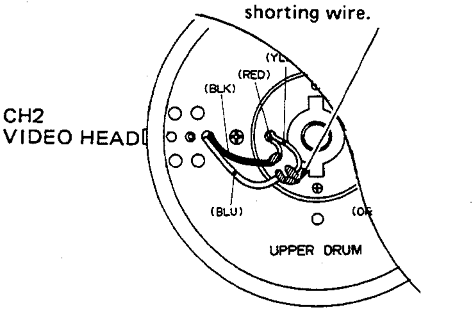
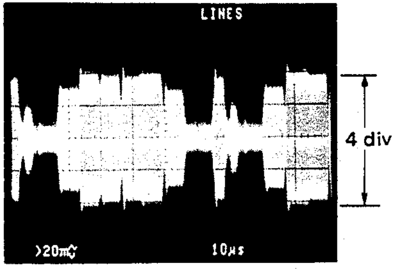
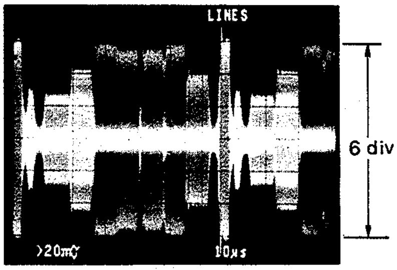
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
16	REC Gated Burst DC Bal. Adj.	TP15 (REC/PB) [TP15 E2] 	R155 (REC/PB) [R155 D2]	Color bar	E-E	1) Adjust R155 so that the waveform at TP15 is balanced in respect to its center (a = b) as shown below: (Apply external trigger from TP2 [REC/PB]).
17	Conv. Level	TP16 (REC/PB) [TP16 E2]	R175 (REC/PB) [R175 E3]	Color bar	E-E	1) Adjust R175 so that the level of the waveform at TP16 is 1.2 ± 0.01 Vp-p. 
18	5.36 MHz Level	TP17 (REC/PB) [TP17 E3]	R176 (REC/PB) [R176 E3]	Color bar	E-E	1) Adjust R176 so that the level of the waveform at TP17 is 0.2 ± 0.003 Vp-p. 
19	Color Delay Adj.	TP11, TP13 (REC/PB) [TP11 C4 TP13 E5]	R136 (REC/PB) [R136 D5]	20T pulse	E-E	1) Mix waveforms at TP11 and TP13 in ADD mode on the oscilloscope. 2) Adjust R136 to obtain the waveforms of OK's (shown on the left) which 20T pulse's level fluctuation at the base are possibly flatted. 3) When the waveform of OK (A) is obtained, change measuring ranges for TP11 and TP13 to obtain the same waveforms of OK (B).
		OK (A)  (TP-11 200 mV/DIV, 2 μs/DIV TP-13 100 mV/DIV, 2 μs/DIV)		OK (B)  (TP-11 200 mV/DIV, 2 μs/DIV TP-13 100 mV/DIV, 2 μs/DIV)		NG  (TP-11 200 mV/DIV, 2 μs/DIV TP-13 100 mV/DIV, 2 μs/DIV)

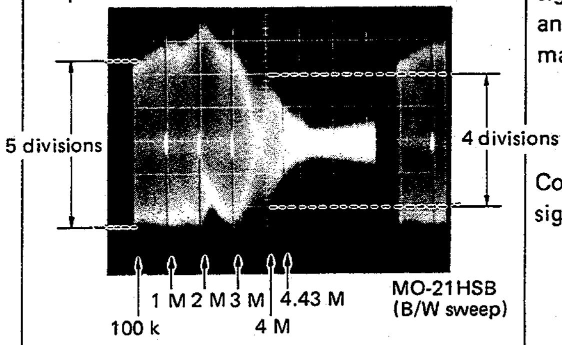
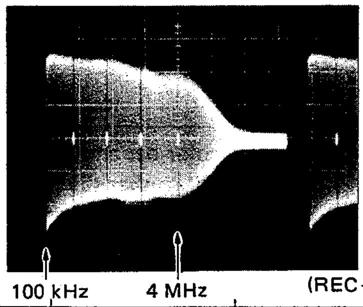
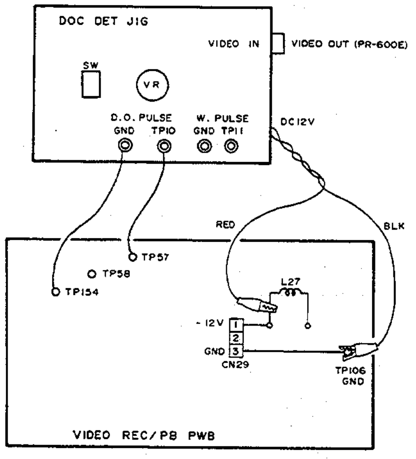
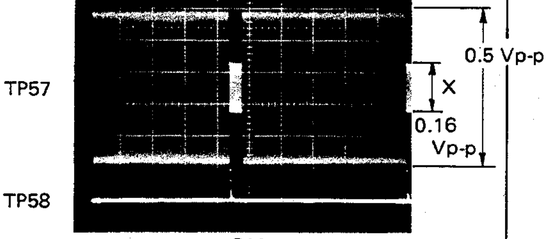
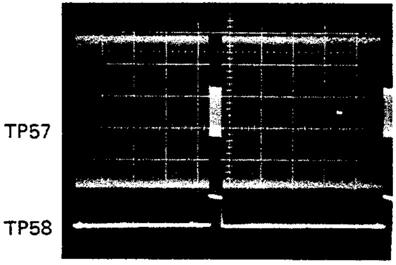
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
20	Dub. Color Delay Adj.	TP11, TP13 (REC/PB) [TP11 C4 TP13 E5]	R191 (REC/PB) [R191 E4]	20T pulse ↓ DUB signal [PGJ05002-2] ↓ DUB IN	E-E (Video Input: DUB)	1) Set VIDEO IN for DUB. 2) Supply 20T pulse through the DUB IN terminal from the DUB signal generating adapter or the DUB OUT terminal of another PR-900E or PR-600E which is correctly adjusted through the dubbing wire. 3) Mix waveforms coming from TP11 and TP13 (ADD mode) and adjust R191 to obtain the OK's waveforms as shown in item 19 observing the oscilloscope.
21	Pilot Burst Width & Position	TP11, TP13 (REC/PB) [TP11 C4 TP13 E5]	R208 (PAL CTL) R206 (PAL CTL) [R208 A3 R206 B3]	Color bar  (A)	E-E	1) Adjust R208 so that the pilot burst width at TP13 becomes 3.7 ± 0.05 μsec. 2) Adjust R206 so that a 1/2 level of point of the fall of H. sync at TP11 delays 0.5 ± 0.01 μsec against the pilot burst at TP13.  The center of trigger is the rise point. (B)
22	REC Color Lock	TP51 (PAL CTL) [TP51 C4]	R225 (PAL CTL) [R225 B4]	Color bar	E-E	1) Adjust R225 so that A = B as shown in picture. (H rate)  A = B
23	Error Tune	TP52 (PAL CTL) [TP52 B4]	R220 (PAL CTL) [R220 B4]	Color bar  NG	E-E	1) Adjust R220 so that the waveform becomes flat.  OK

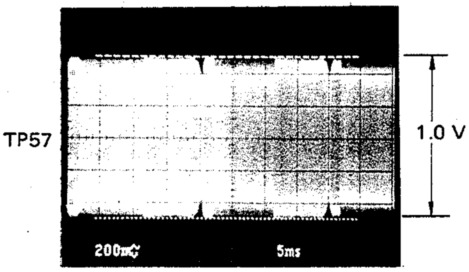
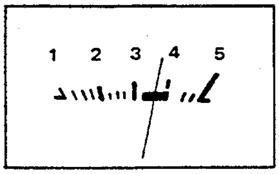
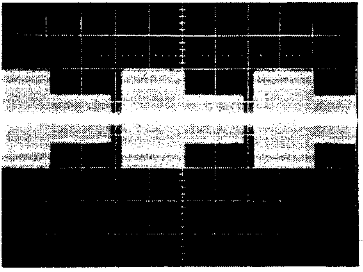
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
24	Pilot Burst Phase & Level	TP53 (PAL CTL) [TP53 A4]  VECTORSCOPE SSG EXT SC SC OUT VIDEO OUT IN CH1 OUT VIDEO IN TP53 CH1 IN PAL CTL VCR 10:1 Probe OSCILLOSCOPE  	R234 (PAL CTL) R237 (PAL CTL) [R234 A5 R237 A5]	Color bar	E-E (Mode: Color)	1) Connect CH-1 IN of the oscilloscope to TP53 and input of vectorscope to CH-1 OUT. 2) Supply an SC signal (that the phase is locked to input color bar) to EXT. SC input of vectorscope. 3) Set PHASE knob of the vectorscope so that two burst (that the phase difference is 90°) are located from U-axis to ± 45°. 4) Set GAIN knob of the vectorscope so that the RED phase indicating bright point is located on circle of scale. 5) Adjust R234 (for Phase) and R237 (for level) the pilot burst signal as shown in picture. **Note:** If the burst phase and RED signal level fluctuate, adjust by improving Phase and Gain VR on the vectorscope.
25	Head Resonance Frequency	TP55 (CH-1) TP56 (CH-2) (REC/PB) [TP55 D7 TP56 D7]  	R650 (CH-1) R653 (CH-2) (REC/PB) [R650 D5 R653 D5]	Sweep signal (1 and 7 MHz markers)	E-E (STOP)	1) Set for Stop mode with a tape. 2) Terminate the sweep signal generator output with a coil (approximately 1 mH), then fasten this coil by placing it near the video head. 3) Slightly turn the upper drum manually and stop it where the signal output is maximized. Then, adjust R650 so that a 7.0 ± 0.2 MHz peak is realized at TP55. 4) Turn the drum 180 degrees by changing the check point, then make the same adjustment on another channel.
26	Head Resonance Q	TP55 (CH-1) TP56 (CH-2) (REC/PB) [TP55 D7 TP56 D7]	R651 (CH-1) R652 (CH-2) (REC/PB) [R651 D5 R652 D5]	Sweep signal (1 and 7 MHz markers)	E-E (STOP)	5) Next, adjust the oscilloscope gain so that the 1 MHz marker signal amplitude becomes 2 divisions on the oscilloscope. 6) Adjust R651 or R652 so that the 7 MHz peak level becomes 5 divisions (2.5 times). 7) Perform the same adjustment for another channel.

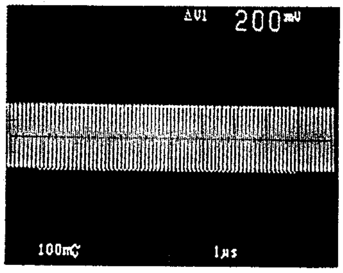
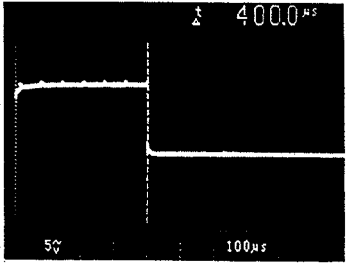
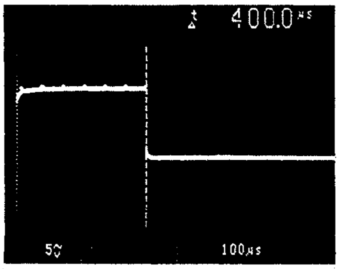
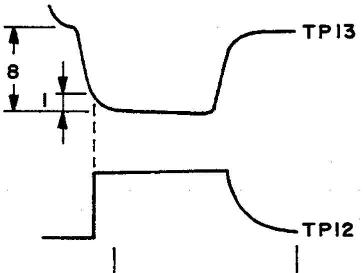
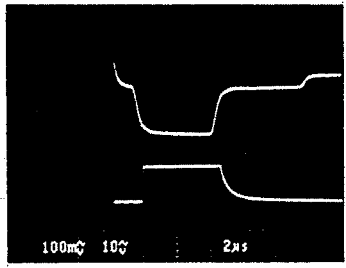
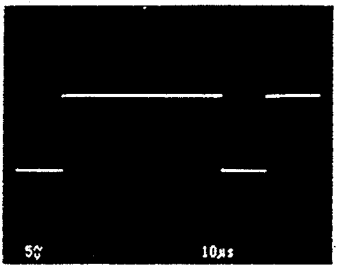
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
27	LIM BAL & CAR BAL	TP59 (REC/PB) [TP59 B6]	R588, R599 (REC/PB) [R588 B6 R599 B6]  	Color bar	E-E (Mode: Color)	1) Adjust R588 (LIM. BAL.) and R599 (CAR. BAL.) to minimize the sync tip noise level.
28	P.B. Balance	TP61 (REC/PB) [TP61 A5]	R602 (REC/PB) [R602 D7]  NG  OK	MO-21HSB (Color bar)	PLAY (Mode: Color)	1) Play back the alignment tape. 2) Adjust R602 so that the difference in level between channel 1 and channel 2 is within 0.5 dB. • **Connections:** Ext. trigger at: TP71 of D/C SERVO board, or D. PULSE terminal of the front panel. (–) slope: CH-1 (+) slope: CH-2
29	RF EQ	TP59 (REC/PB) [TP59 B6]	R811 (REC/PB) R812 (REC/PB) [R811 D7 R812 D6]	MO-21HSB (Color sweep signal: 1, 2, 3 and 4.43 MHz markers)	PLAY (Mode: Color)	1) Play back the alignment tape. Connections in the same manner as above item 28. 2) Adjust the oscilloscope gain so that the 100 kHz marker signal amplitude becomes 5 divisions on the oscilloscope. 3) Adjust R811 and R812 so that the 3 MHz peak level becomes 4 ± 0.2 divisions. 4) Perform the same adjustment for another channel.
				MO-21HSB (B/W sweep signal)	PLAY (Mode: B/W)	5) Play back the alignment tape. 6) Adjust the oscilloscope gain so that 4 MHz level on the other high level channel becomes 4 divisions on the oscilloscope. 7) Confirm that the 4 MHz level on the other low level channel is 3.7 – 4.0 divisions (within 1 dB).

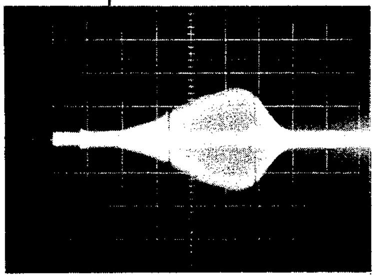
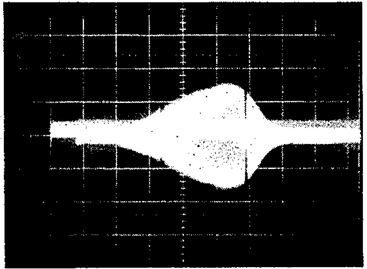
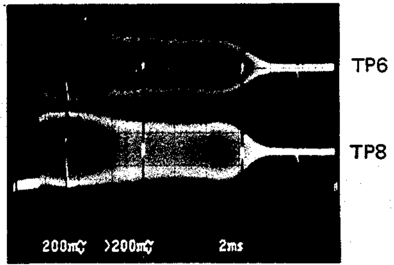
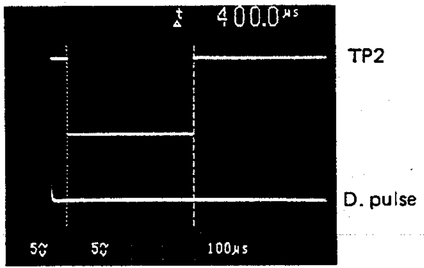
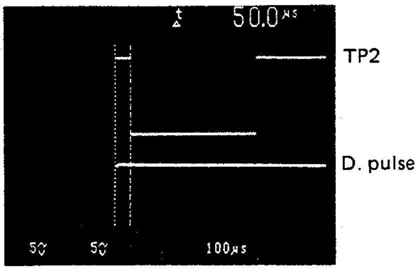
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
30	PB B/W Frequency Response	TP59 (REC/PB) [TP59 B6] 	R801 (REC/PB) [R801 C5]	MO-21HSB (B/W sweep signal)	PLAY (Mode: B/W)	1) Play back the alignment tape. Connections in the same manner as above item 28. 2) Adjust the oscilloscope gain so that the 100 kHz marker signal amplitude becomes 5 divisions on the oscilloscope. 3) At this time, adjust R801 so that 4 MHz marker level is 4 divisions. 4) When the levels CH-1 and CH-2 differ, make adjustment at the other low level channel.
31	REC Frequency Response	Both ends of 10 Ω resistor  OSCILLOSCOPE PROBE 10 ohm Solder VIDEO HEAD TERMINAL BOARD 	R536 (CH-1) R552 (CH-2) (REC/PB) [R536 E7 R552 E7]	Sweep signals (1, 2, 4, 5.5, 6 and 8 MHz markers)	E-E (Mode: B/W)	1) Unsolder the shorting soldering on the terminal board inside the upper drum and solder a resistor of 10 Ω, ±5% to the video head in series. Then load a blank tape for recording. **Note:** It is recommended to solder a shorting wire of about 3 cm long for a 10 Ω resistor and measure with current probe because of accuracy. 2) Shortcircuit between TP54 & TP151 (REC/PB), TP51 & TP52 (REC/PB) and TP60 & TP156 (REC/PB) respectively. 3) Connect the oscilloscope to the both ends of the 10 Ω resistor and supply a sweep signal of approx. 0.2 Vp-p through TP53. Then, observing the oscilloscope adjust R536 (CH-1) and R552 (CH-2) so that 5.5 MHz level becomes 70% of that of 1 MHz.

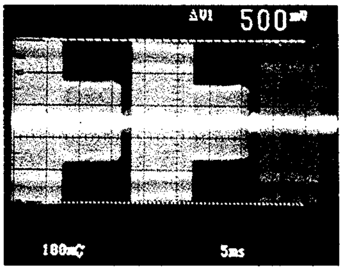
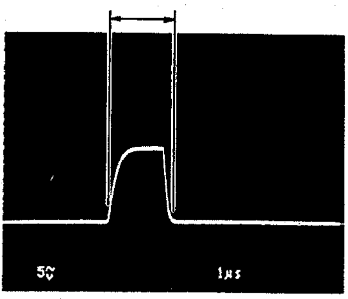
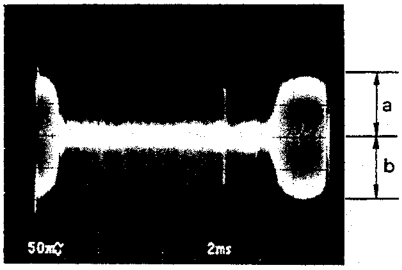
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
32	REC FM Level	Both ends of 10 Ω resistor	R527 (CH-1) R543 (CH-2) (REC/PB) [R527 E5 R543 D6] 	Color bar	E-E (Mode: Color)	1) According the procedures of the above item 31, solder a 10 Ω, ± 5% resistor to the terminal board and load a blank tape for recording. 2) Shortcircuit between TP51 (REC/PB) & TP52 (REC/PB) and TP60 (REC/PB) & TP156 (REC/PB) respectively, and adjust R527 (CH-1) and R543 (CH-2) so that waveforms from the both ends of the resistor (10 Ω) becomes 450$^{+5}_{-0}$ mVp-p. **Note:** It is recommended to solder a short wire of about 3 cm long for a 10 Ω resistor and adjust VRs to obtain 45 mA with current probe. If oblique beats increase on the screen, adjust it for 50 mA again. Unsolder this point and connect the resistor or shorting wire.  CH2 VIDEO HEAD (YL (RED) (BLK) (BLU) (O UPPER DRUM
33	REC Color Level	TP61 (REC/PB) [TP61 A5]	R518 (CH-1) R517 (CH-2) (REC/PB) [R518 E5 R517 E6] MO-21HSB (PLAY) 	MO-21HSB (Color bar) Color bar	PLAY REC ↓ PLAY REC ↓ PLAY	1) Play the color bar segment of MO-21HSB alignment tape. Observe a chroma level at TP61. 2) Record a color bar signal and play it back. Adjust R517 (CH-2) and R518 (CH-1) so that the chroma level becomes 1.5 times as large as the level of step 1). 3) Repeat steps 1) and 2) until no further improvement can be made. Color bar (REC/PB) 

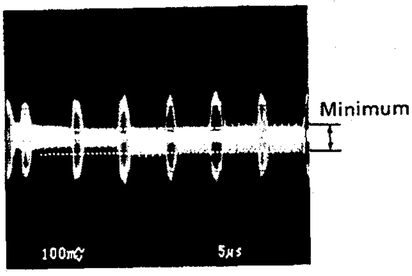
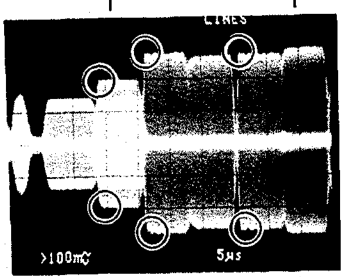
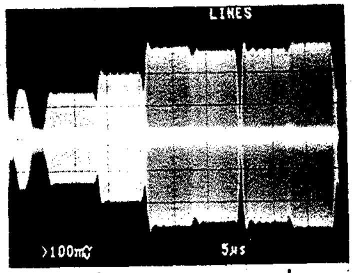
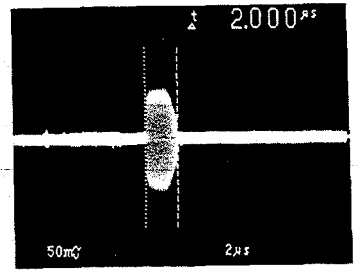
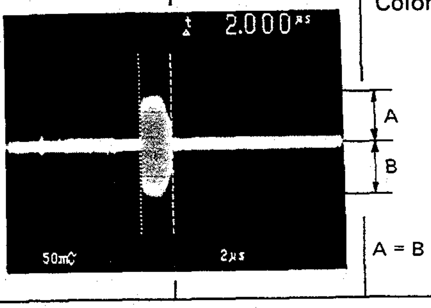
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
34	REC B/W Frequency Response	TP59(REC/PB) [TP59 B6]   (REC→ PLAY)	R332(REC/PB) [R332 B5]	MO-21HSB (B/W sweep signal: 1, 2, 3 and 4.43 MHz markers) Color sweep signal	PLAY (Mode: B/W) REC ↓ PLAY (Mode: B/W)	1) Play back the alignment tape. 2) Adjust the oscilloscope gain so that the 100 kHz marker signal amplitude becomes 5 divisions on the oscilloscope. 3) At this time, make a note of the 4 MHz marker level. 4) Perform the same adjustment for another channel. 5) Record a color sweep signal and play it back. 6) Adjust the oscilloscope gain so that larger one between the channel 1 and channel 2 100 kHz marker level is equal to level of step 2) on the channel. 7) At this time, adjust R332 so that 4 MHz marker level is between 4.9 and 5.0 divisions. 8) Then, adjust the oscilloscope gain so that smaller one between the channel 1 and channel 2 100 kHz marker level is equal to level of step 2) on the channel. 9) Repeat steps 1) to 8) until no further improvement can be made.
35	DOC Level	TP57, TP58, TP154 (REC/PB) [TP57 B7 TP58 B7 TP154 B7] (PGJ05001-2 or PUJ61081)  DOC DET JIG VIDEO IN VIDEO OUT (PR-600E) SW VR D.O. PULSE GND TP10 W. PULSE GND TP11 DC12V RED BLK TP57 TP58 TP154 L27 - 12V 1 2 3 GND CN29 TP106 GND VIDEO REC/PB PWB (A)  OK	R616 (REC/PB) R626 (REC/PB) [R616 C7 R626 B6]	No signal	REC ↓ PLAY	**Notes:** • Adjustments of this item should be done with SW3 (Y/C OUT) in ON state (as it was shipped from the factory). • Connect the PR-600E's VIDEO OUT to VIDEO IN terminal of the DOC DET jig as shown in illustration. 1) Operate recording without any input signal and then play it back. 2) Connect the red (+) terminal of the D. PULSE terminals of the DOC jig to TP57 and the black (–) terminal of the same to TP154 (GND). 3) Adjust R616 sot that the playback FM level becomes 0.5 Vp-p at TP57. 4) Set the jig's VR so that the level of X becomes 0.16 Vp-p. (See the picture (A)) 5) Set R626 before the width of pulse at TP58 just widens as shown in the picture (A). 6) After completion of the above adjustments, proceed to perform the following item 36 RF Output Level. (B)  NG

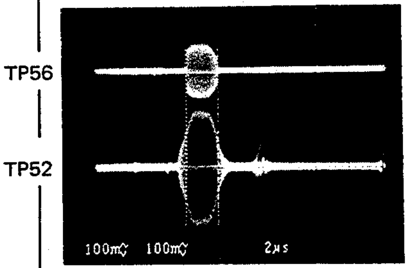
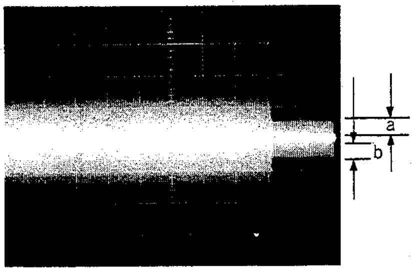
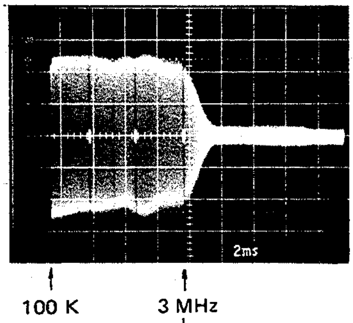
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
36	RF Out-put Level	TP57 (REC/PB) [TP57 B7] 	R616 (REC/PB) [R616 C7]	Color bar	REC (Mode: Color) ↓ PLAY	**Note:** The item 35 DOC LEVEL adjustment must be completed before performing this adjustment. • **Connections:** Ext. trigger at: TP71 of D/C SERVO board, or D. PULSE terminal of the front panel. (–) slope: CH-1 (+) slope: CH-2 1) Record a color bar and play it back. 2) Adjust R616 so that the RF level is 1.0 ± 0.02 Vp-p.
37	Tracking Meter Adj.	Tracking Meter Indication	R620 (REC/PB) [R620 C7]	Color bar	REC (Mode: Color) ↓ PLAY	1) Record a color bar and play it back. 2) Adjust R620 so that the meter reads 3.5. 
38	E-E Chroma Level Adj.	TP61 (REC/PB) [TP61 A5]  (50 mV/DIV, 5 msec/DIV)	R660 (REC/PB) [R660 A4]	Color bar	REC (Mode: Color) ↓ PLAY	• **Connections:** Ext. trigger at: TP71 of D/C SERVO board, or D. PULSE terminal of the front panel. (–) slope: CH-1 (+) slope: CH-2 1) Record a color bar and play it back. 2) Adjust R660 so that the level of the playback output waveform at TP61 is equal to the level of E-E mode at TP61.
39	Audio Bias Trap	TP61 (REC/PB) [TP61 A5]	L81 (REC/PB) [L81 A5]	No signal	REC (Mode: Color) ↓ PLAY ↓ AUDIO DUB	1) Record no signal and play the tape. 2) Set for AUDIO DUB mode and confirm that noise level is less than 80 mVp-p. 3) If not, adjust L81 repeating REC, PLAY and AUDIO DUB operations.

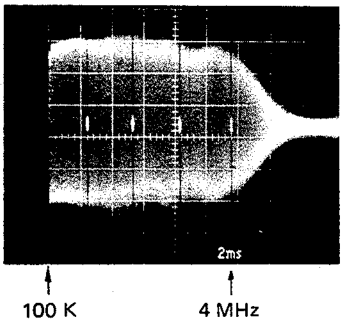
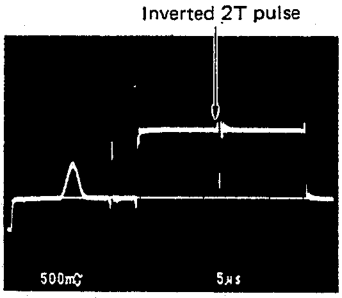
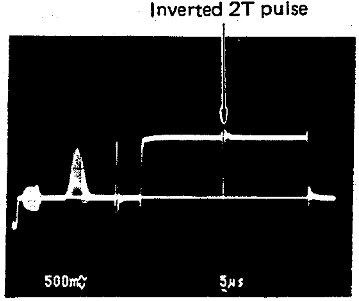
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
40	8 MHz Osc. Level Adj.	TP1 (Y/C) [TP1 E6]	R2 (Y/C) [R2 E5]	Color bar	E-E (Mode: Color)	1) Confirm that the voltage at TP1 is 0.2 ± 0.005 Vp-p. If not, adjust R2 to obtain it. 
41	P.B. V. Pulse Width Adj.	TP67 (Y/C) [TP67 C4]	R672 (CH-1) R671 (CH-2) (Y/C) [R672 C4 R671 D4]	Color bar (–) slope CH-1 	REC (Mode: Color) ↓ PLAY	1) Record a color bar and play it back. 2) Adjust R672 (CH-1)/R671 (CH-2) so that, for channel 1, the width is 400 ± 5 μsec from the falling edge of pulse D. FF and for channel 2, it is 400 ± 5 μsec from the leading edge of pulse D. FF. (+) slope CH-2 
42	SYNC. THR.Level Adj.	TP12, TP13 (Y/C) [TP12 C5 TP13 C6] 	R122 (Y/C) [R122 C6]	Monoscope 	E-E (Mode: B/W)	1) Set the VIDEO LEVEL VR at a position which, at TP13 on the Y/C board, the level at AGC SW OFF is 1/2 at AGC SW ON. 2) Adjust R122 so that the rise of the pulse at TP12 comes to a 1/8 level of point of the fall of the pulse at TP13 on the Y/C board. 3) After the adjustments, return the AGC SW to ON position.
43	3/4H Adj.	TP14 (Y/C) [TP14 C5]	R121 (Y/C) [R121 C6]	Color bar	E-E (Mode: Color)	1) Set AGC SW to ON. 2) Adjust R121 so that the width of the pulse at TP14 is 50 ± 1 μsec. 

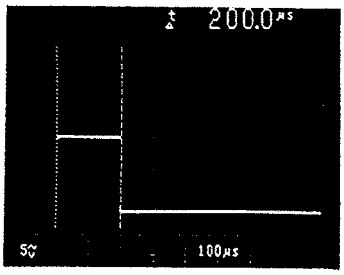
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
44	SIN Adj.	TP7 (Y/C) [TP7 E7] [OK]  (100 mV/DIV, 2 msec/DIV)	R56 (Y/C) [R56 E7]	Color sweep [NG]  (100 mV/DIV, 2 msec/DIV)	REC (Mode: B/W)	• **Connections:** Ext. trigger at: TP71 of D/C SERVO board, or D. PULSE terminal of the front panel. 1) Set for the recording mode. 2) Making sure that synchronizing signal is not contained in the waveform, adjust R56 so that the signal at TP7 is symmetrical with respect to their lower and upper parts.
45	Y Frequency	TP6, TP8 (Y/C) [TP6 E6 TP8 D6]  	R335 (Y/C) [R335 E7]	Color sweep	REC (Mode: B/W) ↓ PLAY	1) Record a color sweep signal and play it back. 2) Connect one channel of a dual trace oscilloscope to TP6 and the other channel to TP8. 3) Set a Y-FREQ RESPONSE knob on the front panel to "0". 4) Adjust R335 so that the frequency response at TP8 is the same as TP6.
46	AFC Frequency Adj.	TP15 (Y/C) [TP15 C5]	R131 (Y/C) [R131 C4]	No signal	E-E (Mode: Color)	1) Connect the frequency counter to TP15 and adjust R131 so that the frequency is 15,625 ± 50 Hz.
47	ADD. Pulse Width Adj.	TP2 (Y/C) [TP2 B4]  	R141 (Y/C) [R141 C4]	Color bar	REC ↓ PLAY ↓ STILL	1) Record a color bar and play it back. 2) Trigger the D. pulse on the front panel. 3) Adjust R141 so that the width of the pulse (LOW) segment at TP2 is 400 ± 5 μsec at the Still mode.
48	ADD. Pulse Position Adj.	TP2 (Y/C) [TP2 B4]  	R140 (Y/C) [R140 C5]	Color bar	REC ↓ PLAY ↓ STILL	1) Continue to set for the Still mode from the item 47. 2) Trigger the D. pulse on the front panel and observe TP2. 3) Adjust R140 so that the fall of the pulse at TP2 takes place 50$^{+1}_{-0}$ μsec from the rise of D. pulse.

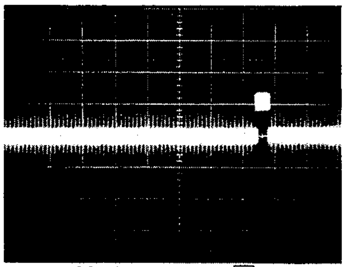
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
49	Osc. Frequency Adj.	TP71 (Y/C) [TP71 A2]	R697 (Y/C) [R697 A1]	Color bar	E-E (Mode: Color)	1) Connect the frequency counter to TP71 at the 10 : 1 probe approach and adjust R697 so that the frequency is 4,433,619 ± 10 Hz.
50	Osc. Level Adj.	TP73 (Y/C) [TP73 A2]	R703 (Y/C) [R703 A1]	Terminated to SC connector 2 Vp-p, 4.433619 MHz ± 10 Hz sine wave	E-E (Mode: Color)	1) Input signal condition VIDEO IN : Colour bar SYNC SW : TBC SC IN : SC (4,433619 MHz ± 10 Hz, sine wave) 2) Confirm that SC level is 2 Vp-p with the input signal. 3) Adjust R703 so that SC level at TP73 becomes 2 Vp-p. 4) After the adjustments, switch the SYNC SW to VIDEO position.
51	P.B. Color Level Adj.	TP54 (Y/C) [TP54 D2]	R554 (Y/C) [R554 D2]  	Color bar	REC (Mode: Color) ↓ PLAY	1) Connections: Ext. trigger at: TP71 of D/C SERVO board, or D. PULSE terminal of the front panel. (–) slope: CH-1 (+) slope: CH-2 2) Record a color bar and play it back. 3) Adjust R554 so that smaller one between the channel 1 and channel 2 PB color levels is 0.5 ± 0.05 Vp-p.
52	Clamp Pulse Width	TP5 (Y/C) [TP5 B5]	R135 (Y/C) [R135 B5]	Color bar	E-E (Mode: Color)	1) Adjust R135 so that the width of the pulse at TP5 is 2.0 ± 0.05 μsec. 
53	Ring DC Balance	TP56 (PAL CTL) [TP56 C6]	R256 (PAL CTL) [R256 B6]	Color sweep	E-E (Mode: Color)	1) Adjust R256 so that the waveform at TP56 is balanced in respect to its center (a = b) as shown below.  a = b

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
54	Ring DC & Ring Balance	TP56 (PAL CTL) [TP56 C6]	R250 (PAL CTL) R254 (PAL CTL) [R250 A7 R254 B7]	Color bar	E-E (Mode: Color)	1) Trigger the oscilloscope externally with the signal from VIDEO OUT. 2) Adjust R250 and R254 so that the level at TP56 is minimum. 
55	Ring Level	TP57 (PAL CTL) [TP57 B7]	R263 (PAL CTL) [R263 C6]	Color bar  (A)  (B)	REC (Mode: Color) ↓ PLAY	1) Set S1 (PAL CTL) to ON. 2) Trigger the oscilloscope externally with the signal from VIDEO OUT. 3) Record a color bar signal and play it back. 4) Adjust R263 so that the rising edge of each color becomes flat as shown in picture (A). 5) Then confirm that the rising edges of each color become the overshooting when VIDEO OUT SW is changed to EDIT. (picture B) 6) Set S1 (PAL CTL) to OFF and perform the same confirmation as shown in (B). 7) After performing the checking, return to the following position. VIDEO OUT SW : NORMAL S1 (PAL CTL) : ON
56	Gated Pulse Width	TP56 (Y/C) [TP56 C2] TP10 (Y/C) [TP10 A6]	R134 (Y/C) [R134 B6]	Color bar  	E-E (Mode: Color)	1) Trigger the oscilloscope externally with the signal from TP10. 2) Adjust R134 so that the width of the burst at TP56 is 2.0 ± 0.05 μsec.
57	SW DC BAL. 1 Adj.	TP56 (Y/C) [TP56 C2] TP10 (Y/C) [TP10 A6]	R584 (Y/C) [R584 C3]	Color bar  	E-E (Mode: Color)	1) Trigger the oscilloscope externally with the signal from TP10. 2) Adjust R584 so that the burst center voltage is offset (A = B).

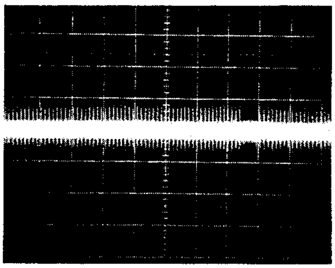
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
58	Gate Pulse Position	TP52, TP56 (Y/C) [TP52 A5 TP56 C2]	R329 (Y/C) [R329 C5]	Color bar  	E-E (Mode: Color)	1) Connect one channel of a dual trace oscilloscope to TP52 and the other channel to TP56. 2) Trigger the oscilloscope externally with the signal from VIDEO OUT. 3) Adjust R329 so that the center of the burst at TP56 matches with the center within 0.2 µsec of the burst at TP52.
59	CONV. BAL. Adj.	TP55 (Y/C) [TP55 D3]	R563 (Y/C) [R563 D3]	Color bar	E-E (Mode: Color)	1) Adjust R563 so that the carrier leak is minimized.  (500 mV/DIV, 1 ms/DIV) a = b
60	Video EQ1	TP9 (Y/C) [TP9 A7]	R64 (Y/C) [R64 D7]	Color sweep signal (0.1 and 3 MHz markers)  	REC (Mode: Color) ↓ PLAY	• **Connections:** Ext. trigger at : TP71 of D/C SERVO board. (–) slope : CH-1 (+) slope : CH-2 1) Set the VIDEO OUT SW of the front panel to the EDIT position and the COLOR SW of the rear panel to the OFF position. The Y. FREQ. RESPONSE SW should be set to "0" position. 2) Record the color sweep signal and play it back. 3) Adjust the oscilloscope gain so that the 100 kHz marker signal amplitude becomes 5 divisions on the oscilloscope. 4) Adjust R64 so that the 3 MHz peak level becomes 4.2 ± 0.2 divisions (–1.5 ± 0.35 dB). 5) Confirm the another channel so that the 3 MHz peak level becomes 4.0–4.4 divisions (within 0.5 dB). **Note:** If the above adjustment is impossible, repeat the adjustment of the item 31 (REC Frequency Response) to re-adjust the 5.5 MHz marker level in the range of 50–90% of the standard.

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
61	Video EQ2	TP9 (Y/C) [TP9 A7]	R65 (Y/C) [R65 D7]	Color sweep signal (0.1 and 4 MHz markers) 	REC (Mode: B/W) ↓ PLAY	• **Connections:** Ext. trigger at : TP71 of D/C SERVO board. (−) slope : CH-1 (+) slope : CH-2 1) Set the VIDEO OUT SW of the front panel to the EDIT position and the COLOR SW of the rear panel to the OFF position. The Y. FREQ. RESPONSE SW should be set to "0" position. 2) With the VIDEO MODE SW set to B/W, record the sweep signal and play it back. 3) Adjust the oscilloscope gain so that the 100 kHz marker signal amplitude becomes 5 divisions on the oscilloscope. 4) Adjust R65 so that the 4MHz peak level becomes $4.2^{+0.3}_{-0.2}$ divisions (−1.5 ± 0.5 dB). 5) Confirm the another channel so that the 4 MHz peak level becomes 4.0−4.5 divisions (within 1 dB). 6) Return the VIDEO OUT SW of the front panel to the NORM position and the COLOR SW of the rear panel to the ON position.
62	Phase EQ1	TP9 (Y/C) [TP9 A7]	R320 (Y/C) [R320 C7]	20T pulse 	REC (Mode: Color) ↓ PLAY	1) Record 20T pulse signal and play it back. 2) Set the SW1 (correlation noise canceller) on the Y/C OUT board to OFF. 3) Turn R320 fully clockwise (viewed from the parts side). Then, slowly adjust in a counterclockwise direction (viewed from the parts side). 4) Adjust R320 so that the ringing levels (left and right) of inverted 2T pulse are symmetrical.
63	Phase EQ2	TP9 (Y/C) [TP9 A7]	R314 (Y/C) [R314 C7]	20T pulse 	REC (Mode: B/W) ↓ PLAY	1) Record 20T pulse signal and play it back. 2) Set the SW 1 (correlation noise canceller) on the Y/C OUT board to OFF. 3) In the same manner as above item 62, adjust R314. 4) Return SW 1 to ON.

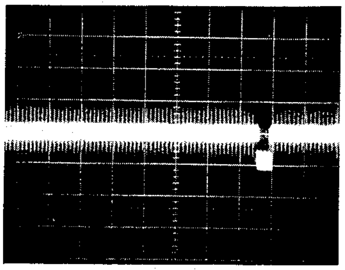
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
64	Calibration Pulse Adj.	TP69 (Y/C) [TP69 C4]	R673 (Y/C) [R673 C4]	Color bar	E-E (Mode: Color)	1) Adjust R673 so that the pulse width is 200 ± 5 µsec. 
65	Color Lock Adj.	TP73 (Y/C) [TP73 A2] TP59 (Y/C) [TP59 C1] TP60 (Y/C) [TP60 D1] TP65 (Y/C) [TP65 B1] TP62 (Y/C) [TP62 C3] TP61 (Y/C) [TP61 C3]	R710 (Y/C) [R710 A3] R718 (Y/C) [R718 E4] R337 (Y/C) [R337 A4] LC1 (Y/C) [LC1 C2] LC2 (Y/C) [LC2 C2] R637 (Y/C) [R637 B1] L70 (Y/C) [L70 B2] R629 (Y/C) [R629 B2]	Color bar	E-E (Mode: Color)	1) Turn R710 fully counterclockwise (viewed from the parts side) so that the SC level at TP73 becomes 0 V. 2) Then, turn R718 clockwise (viewed from parts side) and turn R337 counterclockwise (viewed from parts side). 3) Adjust LC1 to obtain the maximum level at TP59. 4) Adjust LC2 to obtain 7 ± 0.05 V DC at TP60. 5) Adjust R637 so that the level at TP65 becomes 0.2 ± 0.005 Vp-p. 6) Adjust L70 to obtain the voltage of 5.0 ± 0.05 V DC at TP62. 7) Adjust R629 so that the monitor display is normally colored when DC error of the signal at TP61 is nearly centering. 8) Confirm that the DC error of the signal changes as the COLOR LOCK SW on the rear panel is switched. 9) After completion of the above adjustments, proceed to perform the following item 78 Still Sync.



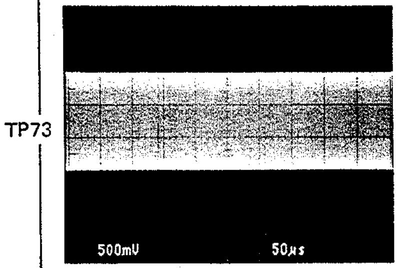
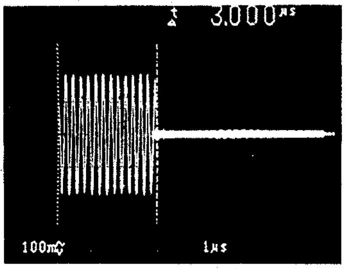
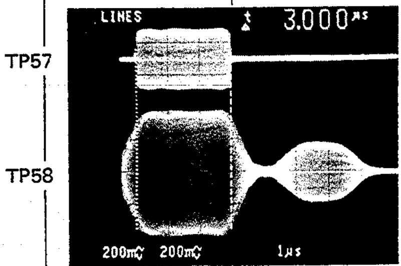
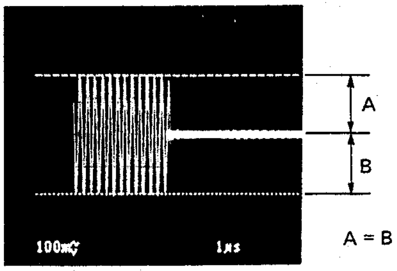
COLOR LOCK SW ⊞
(50 mV/DIV, 500µs/DIV)

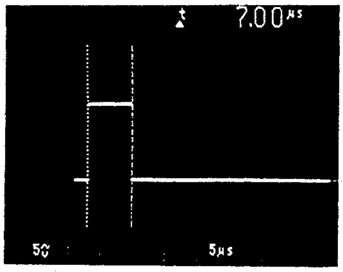
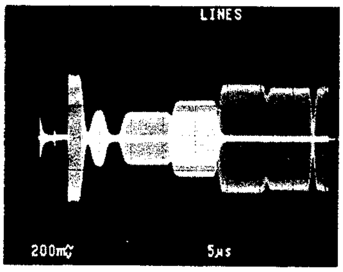
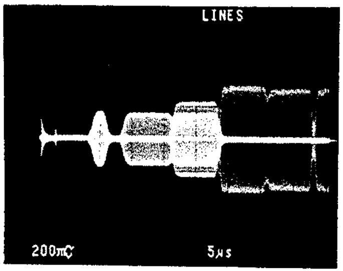
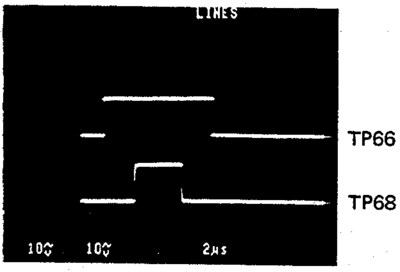


COLOR LOCK SW NOR
(50 mV/DIV, 500µs/DIV)



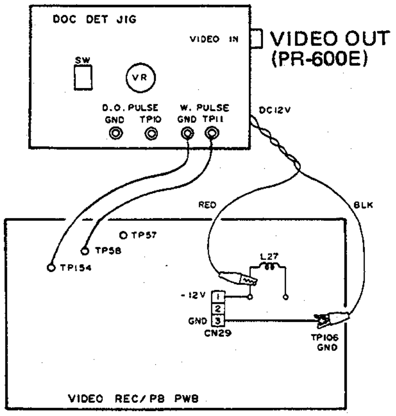
COLOR LOCK SW ⊟
(50 mV/DIV, 500µs/DIV)

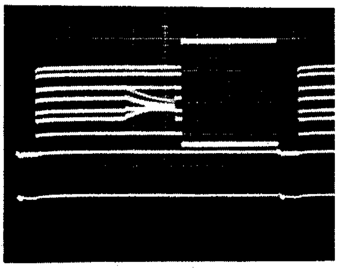
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
65	H. Discri. Gain	Monitor TV TP61 (Y/C) [TP61 C3]	R718 (Y/C) [R718 E4] L91 (Y/C) [L91 E3]		REC ↓ PLAY ↓ STILL	9) Turn R718 fully counterclockwise (viewed from the parts side). 10) Adjust L91 so that the monitor display is normally colored when DC error of the signal from TP61 is nearly at the center. 11) Record a color bar and play it back. 12) Set the SC input for no signal, and set the SYNC SW to TBC, and then, set the unit for Still mode. 13) Adjust R718 so that the monitor display becomes colored normally.
	SC Level Set	TP73 (Y/C) [TP73 A2]	R710 (Y/C) [R710 A3]			14) Trigger the oscilloscope externally with the signal from VIDEO OUT. 15) Adjust R710 again to obtain the SC level of 1.5 ± 0.003 Vp-p. 16) Set the SYNC SW to "VIDEO".
66	Pilot Gate Width	TP57 (Y/C) [TP57 C2]	R120 (Y/C) [R120 C6]	Color bar	E-E (Mode: Color)	1) Adjust R120 so that the width of the burst at TP57 is 3.0 ± 0.05 µsec. 
67	Pilot Burst Position	TP57 (Y/C) TP58 (Y/C) [TP57 C2 TP58 A5]	R676 (Y/C) [R676 C4]	Color bar 	E-E (Mode: Color)	1) Connect one channel of a dual trace oscilloscope to TP57 and the other channel to TP58. 2) Trigger the oscilloscope externally with the signal from VIDEO OUT. 3) Adjust R676 so that the center of the burst at TP57 matches with the center within 0.2 µsec of the burst at TP58.
68	SW DC BAL 2 Adj.	TP57 (Y/C) [TP57 C2]	R589 (Y/C) [R589 C3]	Color bar	E-E (Mode: Color)	1) Adjust R589 so that the burst center voltage offsets (A = B). 

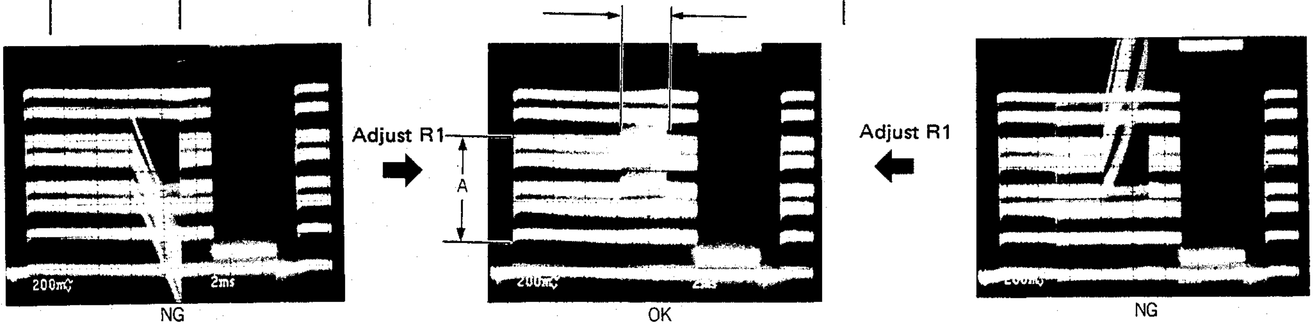
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
69	Mask Width	TP66 (Y/C) [TP66 D4]	R669 (Y/C) [R669 D4]	Color bar	E-E (Mode: Color)	1) Adjust R669 so that the pulse width is 7.0 ± 0.1 µsec. 
70	Pilot Burst Cancel	TP52 (Y/C) [TP52 A5]	R674 (Y/C) R544 (Y/C) [R674 C4 R544 A5]	Color bar	E-E (Mode: Color)	1) Adjust R674 so that the pilot burst and noise before burst are cancelled.  2) Adjust R544 so that DC level of the cancelled part is equal to the around part within 5 mV. 
71	Mask Position	TP66, TP68 (Y/C) [TP66 D4 TP68 C4]	R668 (Y/C) [R668 D5]	Color bar	E-E (Mode: Color)	1) Adjust R668 so that the waveform at TP-66 comes at the center in that at TP68. (The error should be within 0.1 µsec.) 
72	ADM Y Level	TP16 (Y/C) [TP16 E6] TP6 (Y/C) [TP6 E6]	R304 (Y/C) [R304 E5]	Color bar	E-E (Mode: Color)	1) Turn R304 fully counterclockwise (viewed from the parts side). The, slowly adjust in a clockwise direction (viewed from the parts side). 2) Adjust R304 so that the level of the waveform at TP16 is equal to the level at TP6. (Set to a first agreed point.)

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
73	DOC DC Balance	TP9 (Y/C) [TP9 A7]	R1 (Y/C) [R1 D5] R304 (Y/C) [R304 E5]	Color bar	REC ↓ PLAY	**Notes:** • Do not make a shortcircuit between W. PULSE terminals of the DOC DET. jig. It causes damage of internal ICs. • Connect the VIDEO IN terminal of the DOC DET. jig with PR-600E's VIDEO OUT terminal. 1) Record the color bar signal and play it back. 2) Trigger the oscilloscope externally with signal from TP71 (D/C SERVO). 3) Connect the red (+) terminal of the W. PULSE terminals of the DOC DET. jig to TP58 (REC/PB) and the black (–) terminal to TP154 (GND, REC/PB). 4) Adjust the semi-fixed resistor located on the right hand of the jig to preset DOC's operation area to be in the center on the monitor TV screen (3 msec in the waveform). 5) Adjust R1 to minimize level fluctuation in the DOC's operation area. 6) If the above adjustment cannot take place only by R1, slightly turn R304 and repeat the adjustments described in the above steps 5) and 6) to obtain the waveform as OK in the figures.
74	DL Adj.	TP6 (Y/C) [TP6 E6] TP16 (Y/C) [TP16 E6]	R304 (Y/C) [R304 E5] R12 (Y/C) [R12 D6]	20T pulse	E-E (Mode: Color)	1) Adjust R304 so that the 2T pulses at TP6 and TP16 fit with each other in top position as shown in picture (A). 2) Adjust R12 so that the undershooting levels (left and right) of 2T pulse are symmetrical as shown in picture (B).

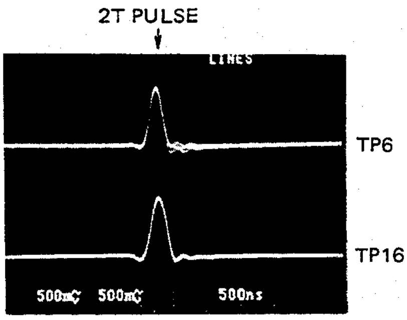
(PGJ05001-2 or PUJ61081)


DOC DET JIG
VIDEO IN
VIDEO OUT
(PR-600E)
SW
VR
D.O. PULSE
GND
TP10
W. PULSE
GND
TP11
DC12V
RED
BLK
TP57
TP58
TP154
L27
-12V
1
2
3
GND
CN29
TP106
GND
VIDEO REC/PB PWB

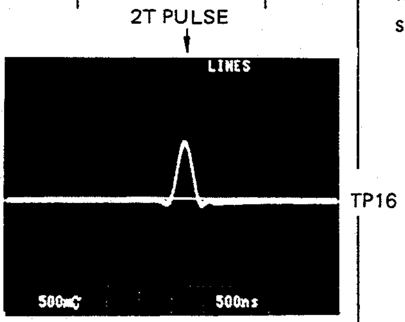

NG



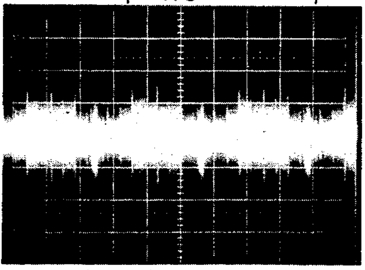
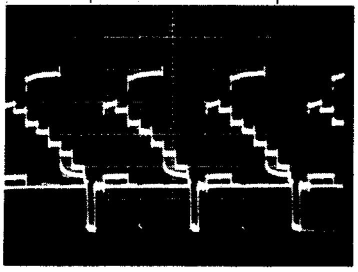
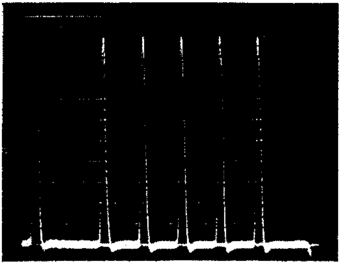
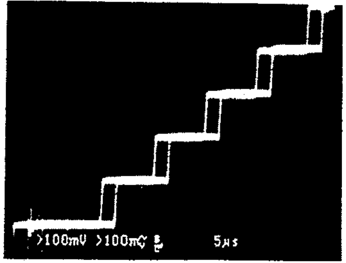
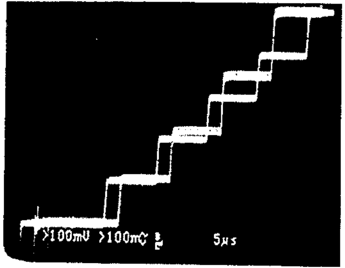
NG OK NG

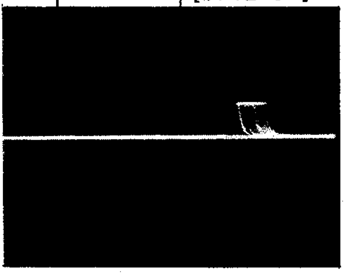
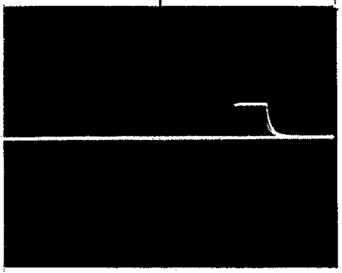
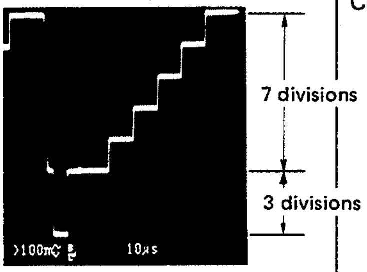
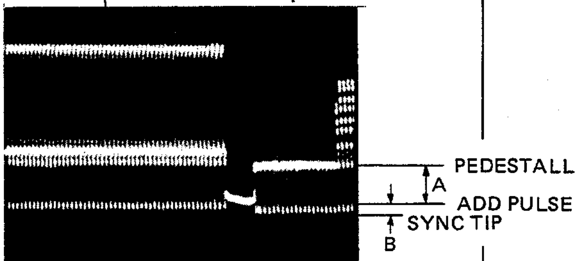


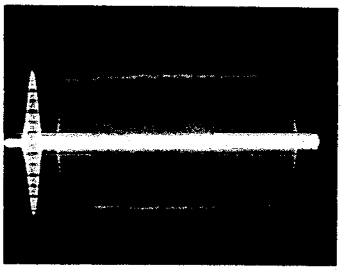
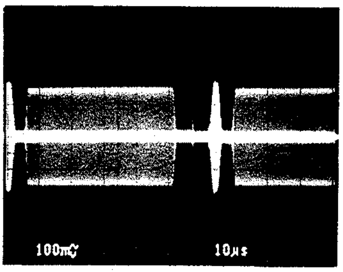
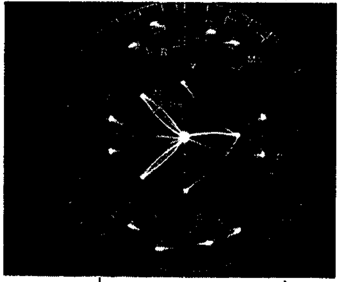
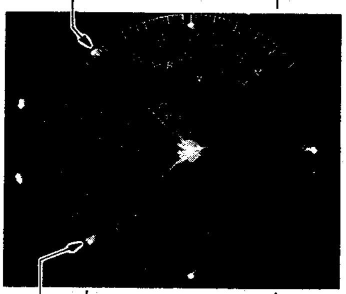
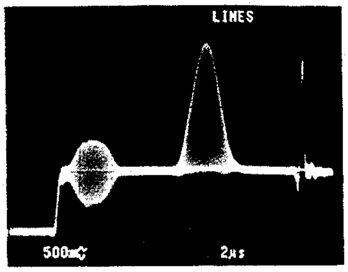
(A)

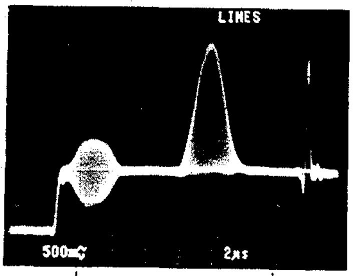
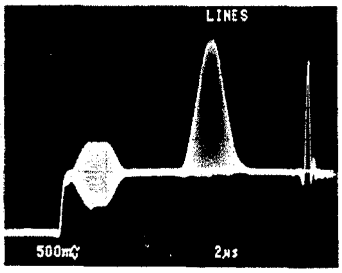
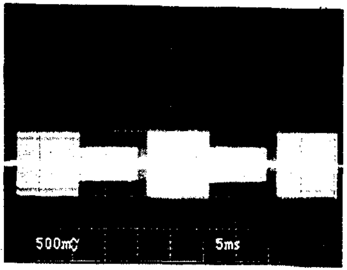
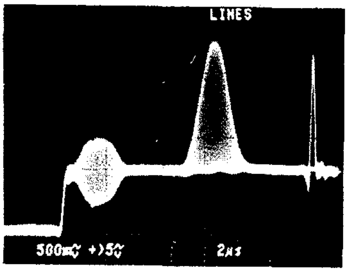


(B)

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
75	Noise Balance Noise Level	TP3 (Y/C) [TP3 C6] TP9 (Y/C) [TP9 A7]	R18 (Y/C) [R18 D6] R23 (Y/C) [R23 C5]	Color bar	REC (Mode: Color) ↓ PLAY	**Note:** Confirm that SW1 (Y/C) is ON (factory set). There is VIDEO OUT SW on the front panel. 1) Record a color bar signal. 2) Adjust R18 while this tape is played back so that the TP3 up/down waveform is balanced as shown in the left figure. 3) Set VIDEO OUT SW to EDIT, then confirm that the waveform disappears. Trun VIDEO OUT SW to NORMAL. And set SW1 (Y/C) to OFF, then confirm that the waveform disappears. Then turn SW1 (Y/C) to ON. 4) Adjust R23 so that TP9 noise is reduced.
		TP3  (5 mV/DIV, 20 µsec/DIV)		TP9  (20 mV/DIV, 20 µsec/DIV)		
76	HF Noise Level	TP10 (Y/C) [TP10 A6]	R32 (Y/C) [R32 B6]	50% white signal	REC (Mode: Color) ↓ PLAY	1) Turn SW1 (Y/C) OFF. 2) Record a 50% white signal and play it back. 3) Adjust R32 to minimize the noise at H rate. 4) Return SW1 ON.
77	White Linearity	VIDEO OUT TP9 (Y/C) [TP9 A7]	R84 (Y/C) [R84 B7]	Stairstep (5 steps)	E-E	**Note:** It is desirable to use the waveform monitor for this adjustment from a precision viewpoint. However, since some waveform monitors are not provided with the required functions, an oscilloscope can be used for this adjustment. ● When the waveform monitor is used: 1) Switch the mode to DIFF'D STEP. Set the peak level to full scale. 2) Adjust R84 so that each peak has the same level as shown in the figure. ● When an oscilloscope is used: 1) Connect the input signal to oscilloscope CH-1 and TP9 to CH-2. 2) For the Y signal portion, as shown in the left, adjust the gain VR of the oscilloscope so that the white and black levels are balanced. 3) Adjust R84 and gain of the channel 2 so that the signal level of the channel 2 varies in the halfway signal steps in the same manner as that signal level of the channel 1.
			When the waveform monitor is used  An OK example			
		OK  	When an oscilloscope is used	NG  		

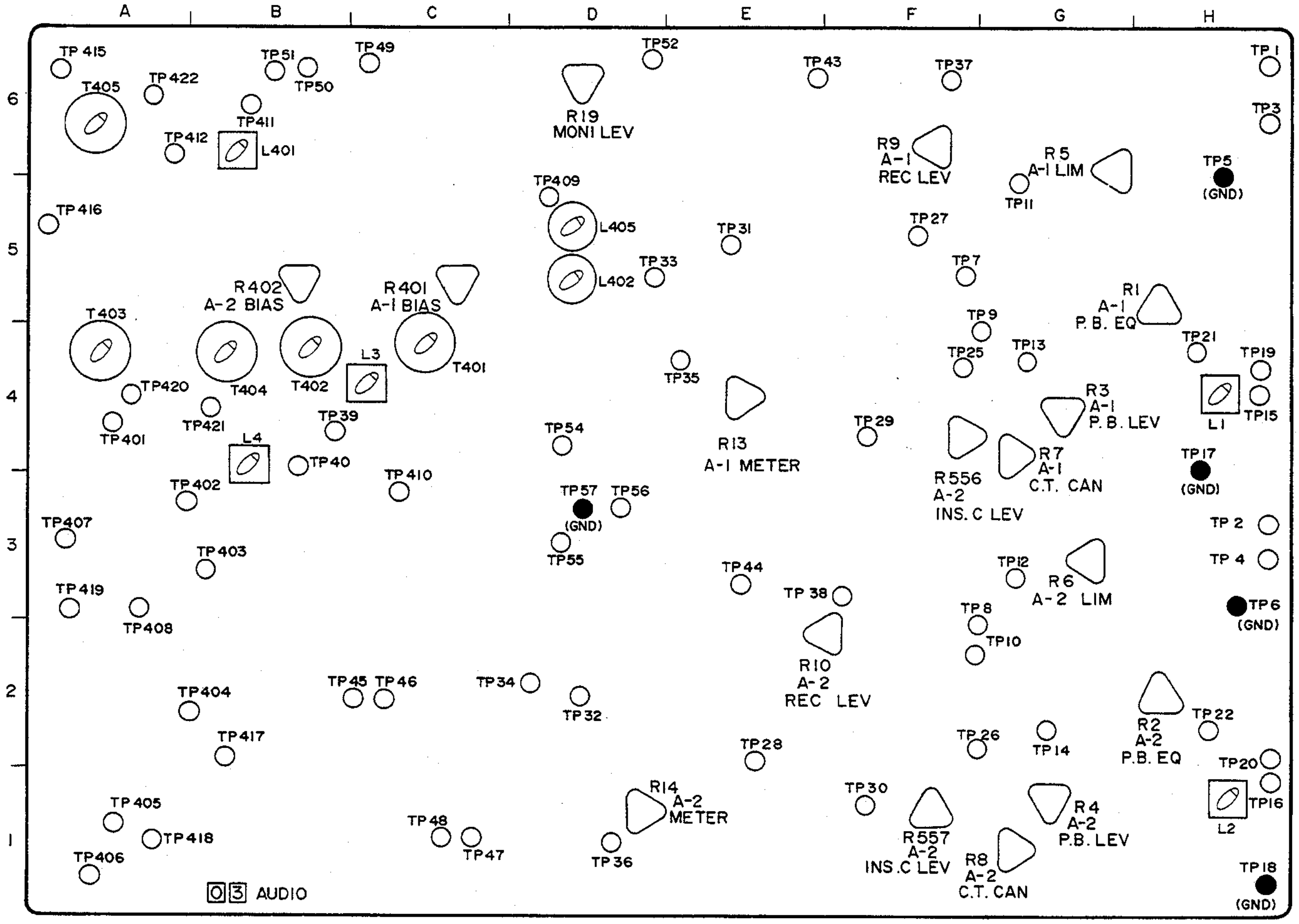
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
78	Still sync	Monitor screen TP12 (Y/C) [TP12 C5]  (10 V/DIV, 5 µsec/DIV) [TP12]	R337 (Y/C) [R337 A4]  (10 V/DIV, 5 µsec/DIV) [TP12]	Color bar	REC ↓ PLAY ↓ REC ↓ PLAY ↓ PAUSE/ STILL	1) Connection: Ext. trigger at: TP9 or TP10 (Y/C). 2) Record the color bar signal and play it back, then set for Still mode. 3) Set R337 before the hue on the monitor screen is just erased. Then, slowly adjust in the counterclockwise direction (viewed from the parts side) so that the V. sync pulse appears at TP12. 4) Confirm that the waveform of V. sync pulse is not wanting at V rate.
79	Sync. Linearity	TP9 (Y/C) [TP9 A7]	R85 (Y/C) [R85 B7]  	Stairstep (5 steps)	E-E (Mode: Color)	1) Adjust the gain VR of the oscilloscope to set the level of the Y signal portion to a level of 7 scale divisions on the oscilloscope. At this time, adjust R85 to set the level of the sync signal to a level of 3 scale divisions.
80	DUB. Y Level	TP9 (Y/C) [TP9 A7]	R96 (Y/C) [R96 A7]	Color bar	E-E (Mode: Color)	1) With the DUB connector disconnected, adjust R96 to set the level of the waveform at TP9 to 1.0 ± 0.01 Vp-p.
81	DUB. OUT DC	TP9 (Y/C) [TP9 A7]	R93 (Y/C) [R93 A7]	Color bar	E-E (Mode: Color)	1) Adjust R93 to set the back-porch DC level of the waveform at TP9 to 0 ± 0.005 VDC.
82	OUT Level	VIDEO OUT (Rear panel) (Load: 75 Ω)	R106 (Y/C) [R106 A6]	Color bar	E-E (Mode: Color)	1) Adjust R106 to set the level of the video signal at VIDEO OUT to 1 ± 0.01 Vp-p with a 75-ohm load.
83	Video Output DC Level	VIDEO OUT (Rear panel) (Load: 75 Ω)	R108 (Y/C) [R108 A6]	Color bar	E-E (Mode: Color)	1) Adjust R108 to set the back-porch DC level of the video signal at VIDEO OUT to 0 ± 0.005 V DC with a 75-ohm load.
84	B/W Level Adj.	TP9 (Y/C) [TP9 A7]	R66 (Y/C) [R66 D7]	Color bar	REC (Mode: Color) ↓ PLAY	1) Record a color bar and play it back. 2) Adjust R66 so that, for the waveform at TP9, no difference in level between the COLOR and B/W modes.
85	ADD Pulse Level	TP9 (Y/C) [TP9 A7]  (200 mV/DIV, 500 µsec/DIV) A : B = 7 : 1	R88 (Y/C) [R88 B6]	Color bar	REC (Mode: B/W) ↓ PLAY ↓ PAUSE/ STILL	1) Record the color bar signal on a tape. 2) Play back this tape and enter the Pause mode. 3) Adjust R88 to set the DC level of the ADD pulse at TP9 to 1/8 the level of the sync signal tip.

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
86	DG Compensation	VIDEO OUT TP52 (Y/C) [TP52 A5]	R44 (Y/C) [R44 E5]  An example of a waveform monitor  In case of an oscilloscope	Stairstep (5 steps with color burst)	REC (Mode: Color) ↓ PLAY	1) Connect the waveform monitor to VIDEO OUT to enter the 4.43 BP mode or CHROMA mode. 2) Record stairstep signals of five steps with doubled subcarriers. 3) Play back this tape. 4) Adjust R44 so that the output signal becomes parallel. ● When a waveform monitor is not available, connect an oscilloscope to TP52, then perform the procedure mentioned above.
87	C. Level	VIDEO OUT An example of E-E signal  (A)	R540 (Y/C) [R540 A5]	Color bar  (B)	REC (Mode: Color) ↓ PLAY	1) Record a standard color bar (EBU 75%) signal (waveform A). 2) In recording mode, adjust the phase and gain of the vectorscope to set the burst level to waveform B. 3) Play the tape and adjust R540 to set the burst level to waveform B. 4) Observe that the indicating spot of the vectorscope does not divide into two.
88	P.B. C. Delay	TP10 (Y/C) [TP10 A6]	R688 (REC/PB) [R688 A6]	20T pulse	REC (Mode: Color) ↓ PLAY	1) Record the 20T pulse on a tape and play it back. 2) Adjust R688 so that the bottom portion of the 20T pulse becomes flat. 

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
89	OFF Delay	TP10 (Y/C) [TP10 A6]	R272(PAL CTL) [R272 C7] 	20T pulse	REC (Mode: Color) ↓ PLAY	1) Set the VIDEO OUT SW to EDIT position of the front panel. 2) Record the 20T pulse on a tape and play it back. 3) Adjust R272 so that the bottom portion of the 20T pulse becomes flat. 4) Return the VIDEO OUT SW to NORMAL position.
90	E-E C. Delay	TP10 (Y/C) [TP10 A6]	R669(REC/PB) [R669 B4]	20T pulse	REC (Mode: Color)	1) Adjust R669 so that the bottom portion of the 20T pulse becomes flat. 
91	DUB. C. Output Level	TP51 (Y/C) [TP51 E3]	R518 (Y/C) [R518 E3] 	Color bar	REC (Mode: Color) ↓ PLAY	1) Record the color bar signal on a tape and play it back. 2) With the DUB connector disconnected, adjust R518 to set the color level to 1.0 ±0.01 Vp-p.
92	DUB. C. Output Delay	TP9, TP51 (Y/C) [TP9 A7] [TP51 E3]	R511 (Y/C) [R511 E2] 	20T pulse	REC (Mode: Color) ↓ PLAY	1) Record the 20T pulse on a tape and play it back. 2) Connect TP9 to the channel 1 of the oscilloscope and TP51 to the channel 2. 3) In the ADD mode, adjust the signal gain of the channel 2. Further, during playback of the tape, adjust R511 so that the bottom portion of the 20T pulse becomes flat or symmetrical in right and left.

3.5 AUDIO CIRCUIT

Audio P.W.B.


A
B
C
D
E
F
G
H
6
5
4
3
2
1
TP 415
T405
TP 422
TP51
TP50
TP49
TP411
TP412
L401
TP52
R19
MONI LEV
TP43
TP37
TP 1
TP3
R9
A-1
REC LEV
R5
A-1 LIM
TP11
TP5
(GND)
TP409
TP416
L405
TP31
TP27
L402
TP33
TP7
R402
A-2 BIAS
R401
A-1 BIAS
T403
R1
A-1
P.B. EQ
TP9
TP25
TP13
TP21
TP19
L3
T401
TP35
TP420
T404
T402
R3
A-1
P.B. LEV
L1
TP15
TP39
TP421
TP401
L4
TP54
TP29
R13
A-1 METER
R7
A-1
C.T. CAN
TP17
(GND)
TP40
TP410
TP402
TP57
TP56
(GND)
R556
A-2
INS. C LEV
TP407
TP 2
TP 4
TP403
TP55
TP44
TP12
R6
A-2 LIM
TP419
TP 38
TP8
TP6
(GND)
TP408
TP10
R10
A-2
REC LEV
TP45
TP46
TP34
TP32
TP404
TP417
TP26
TP14
R2
A-2
P.B. EQ
TP22
TP28
TP20
TP 405
R14
A-2
METER
TP30
R4
A-2
P.B. LEV
TP16
L2
TP48
TP418
TP47
TP36
R557
A-2
INS.C LEV
R8
A-2
C.T. CAN
TP406
TP18
(GND)
03 AUDIO

Note: Parts location viewed from the pattern side.

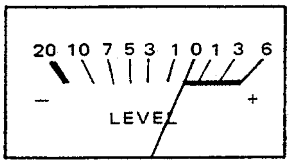
Test points & Port addresses

- **Audio P.W.B.**

TP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	25	26	27	28
Ad's	H 6	H 3	H 6	H 3	H 6	H 3	F 5	F 2	G 4	G 2	G 5	G 3	G 4	G 2	H 4	H 1	H 4	H 1	H 4	H 2	H 4	H 2	F 4	F 2	F 5	E 2
TP	29	30	31	32	33	34	35	36	37	38	39	40	43	44	45	46	47	48	49	50	51	52	54	55	56	57
Ad's	F 4	F 1	E 5	D 2	D 5	D 2	E 4	D 1	F 6	F 3	B 4	B 4	E 6	E 3	C 2	C 2	C 1	C 1	C 6	B 6	B 6	D 6	D 4	D 3	D 3	D 3
TP	401	402	403	404	405	406	407	408	409	410	411	412	415	416	417	418	419	420	421	422						
Ad's	A 4	A 3	B 3	A 2	A 1	A 1	A 3	A 3	D 5	C 3	B 6	A 6	A 6	A 5	B 2	A 1	A 3	A 4	B 4	A 6						

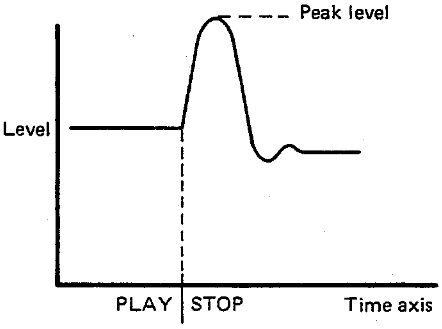
R	1	2	3	4	5	6	7	8	9	10	13	14	19	401	402	556	557	T401	T402	T403	T404	T405	L1	L2	L3	L4
Ad's	H 5	H 2	G 4	G 1	G 6	G 3	G 4	G 1	F 6	F 2	E 4	D 1	D 6	C 5	B 5	F 4	F 1	C 4	B 4	B 4	A 4	A 6	H 4	H 1	C 4	B 4
R	L401																									
Ad's	B 6																									

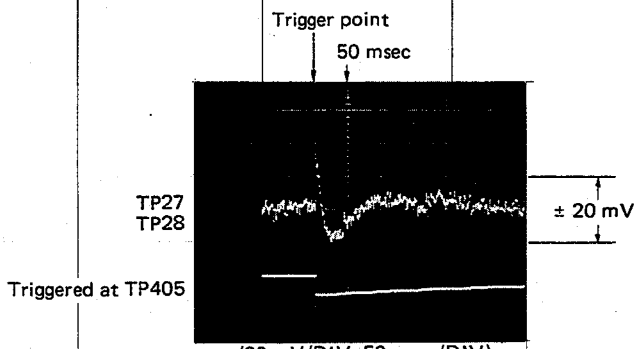
(0 dBm = 0.775 V RMS with a 600 Ω load/ 0 dBs = 0.775 V RMS = 2.19 Vp-p)

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
1	E-E Level Check	AUDIO OUT (Load : 600 Ω)	–	1 kHz/–60 dBs Sine wave	STOP	1) Setting of each factor: Input level selector : –60 dB Output level selector: +4 dB Limiter switch : OFF Recording level VR : MAX. Load resistance : 600 Ω In this situation, check the output level for each channel to see that it is +18 dBm ± 1 dB.
2	Limiter Level	AUDIO OUT (Load: 600 Ω)	R5 (CH-1) (AUDIO) R6 (CH-2) (AUDIO) [R5 G6 R6 G3]	1 kHz/–55 dBs	STOP	1) Set the limiter switch to ON. 2) Thereupon, adjust R5 (CH-1) and R6 (CH-2) separately so that their respective output levels are +8 dBm.
3	Linearity	AUDIO OUT (Load: 600 Ω)	REC LEVEL VR (Front panel)	1 kHz/–60 dBs ↓ 1 kHz/–46 dBs	STOP	1) Set the limiter switch to OFF. 2) Turn the REC LEVEL VR counterclockwise and set it at a position at which output level of +4 dBm is obtained from input of 1 kHz/–60 dBs. **Note:** The position of the REC LEVEL VR set in this adjustment is assumed as the reference position. 3) Subsequently, with input of 1 kHz/–46 dBs, check that the output level is +18 dBm ± 1 dB.
4	Meter Sens.	METER NEEDLE	R13 (CH-1) (AUDIO) R14 (CH-2) (AUDIO) [R13 E4 R14 D1]	1 kHz/–60 dBs	STOP	1) Set the REC LEVEL VR at a position at which output of +4 dBm is obtained. 2) Subsequently, adjust R13 (CH-1) and R14 (CH-2) so that the meter points to "0". 
5	Monitor Output Level	MONITOR OUT (Non load)	R19 (AUDIO) [R19 D6]	1 kHz/–60 dBs	STOP	1) Apply input of 1 kHz/–60 dBs to only one channel, and change the position of the AUDIO MONITOR SW to that input side. 2) Adjust R19 so that output level is 0 dBs ± 0.2 dB. 3) Check that the output level is –6 dBs ± 1 dB with the AUDIO MONITOR SW set to "MIX".
6	Monitor Output Level	AUDIO OUT (Front panel)	–	1 kHz/–60 dBs	STOP	1) Check that when the REC LEVEL VR is set at a position at which output of +4 dBm is obtained (the meter points to "0"), the output level is 0 ± 1.5 dBs. (The load is open.) 2) This adjustment should be performed both for AUDIO-1 and AUDIO-2.

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
7	P.B. Output Level	AUDIO OUT (Load: 600 Ω)	R3 (CH-1) (AUDIO) R4 (CH-2) (AUDIO) [R3 G4 R4 G1]	MO-22HS (1 kHz/0 dB)	PLAY	1) Set the OUTPUT LEVEL switch to +4 dB position. 2) Adjust the VRs so that AUDIO output level becomes +4 dBm for the both channels in the playback mode.
8	P.B. Freq. Response	AUDIO OUT (Load: 600 Ω)	R1 (CH-1) (AUDIO) R2 (CH-2) (AUDIO) [R1 H5 R2 H2]	MO-22HS (1 kHz/–10 dB) (10 kHz/–10 dB)	PLAY	**Note:** Perform this adjustment after the A/C head height and azimuth adjustments are completed. 1) Play back the 1 kHz/–10 dB segment of the alignment tape. Next, play back the 10 kHz/–10 dB segment of the tape and adjust R1 and R2 so that the playback level of the latter becomes 0.0 ± 0.2 dB for the former's level.
9	Erase Osc.	TP412 (AUDIO) [TP412 A6]	L401 (AUDIO) [L401 B6]	–	REC	1) Check that the oscillation frequency is 70 ± 3 kHz. (T = 13.7 – 14.9 µsec) 2) If not, adjust L401 obtain the standard value.
10	Full Erase Trans. fo Adj.	TP415 (AUDIO) [TP415 A6]	T405 (AUDIO) [T405 A6]	–	REC	1) Adjust T405 so that the amplitude is maximum.
11	Full Erase Voltage	TP422, 416 (GND) (AUDIO) [TP422 A6 TP416 A5]	–	–	REC	1) Check that the voltage is more than 250 mV R.M.S.
12	Audio Erase Trans.	TP420 TP421 TP416 (GND) (AUDIO) [TP420 A4 TP421 B5 TP416 A5]	T403 (CH-1) (AUDIO) T404 (CH-2) (AUDIO) [T403 B4 T404 A4]	–	REC (CH-1) (CH-2)	1) Turn the cores of T403 and T404 counterclockwise (viewed from the pattern side) from their maximum amplitude position respectively to set the level for 110 mV R.M.S. using an audio tester.
13	Bias Trans.	TP19 (AUDIO) TP20 (AUDIO) [TP19 H4 TP20 H2]	T401 (CH-1) (AUDIO) T402 (CH-2) (AUDIO) [T401 C4 T402 B4]	No signal	REC (CH-1) (CH-2)	1) Adjust T401 (CH-1)/T402 (CH-2) so that the amplitude is maximum.
14	Bias Trap	TP39 (AUDIO) TP40 (AUDIO) [TP39 B4 TP40 B4]	L3 (CH-1) (AUDIO) L4 (CH-2) (AUDIO) [L3 C4 L4 B4]	No signal	REC	1) Confirm that the voltage at TP39 and TP40 is less than 15 Vp-p, respectively. If not, adjust L3 and L4 to obtain the standard value. 2) In case of adjusted L3 and L4, proceed to perform the following item 15 Bias Level and repeat the adjustment of this item 14.
15	Bias Level	TP19 (AUDIO) TP20 (AUDIO) [TP19 H4 TP20 H2]	R401 (CH-1) (AUDIO) R402 (CH-2) (AUDIO) [R401 A4 R402 A3]	No signal	REC	1) Adjust R401 (CH-1)/R402 (CH-2) so that the voltage at TP19 (CH-1)/TP20 (CH-2) is 80 Vp-p. **Note:** After completion this adjustment, check the REC/PB Freq. response adjustment at item 16.

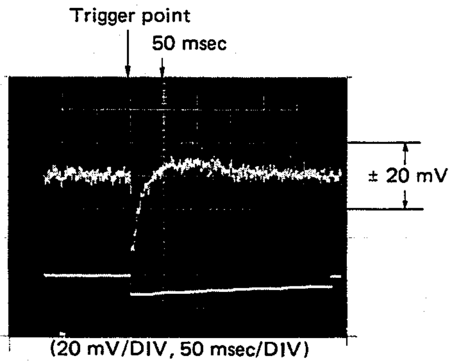
<table>
<tr><th>No.</th><th>Item</th><th>Check Point</th><th>Adjustment Parts</th><th>Signal</th><th>Mode</th><th>Description</th></tr>
<tr><td>16</td><td>REC/PB
Freq.
response.</td><td>AUDIO OUT
(Load: 600 Ω)
TP19, TP20
(AUDIO)
[TP19 H4
TP20 H2]</td><td>R401 (CH-1)
(AUDIO)
R402 (CH-2)
(AUDIO)
[R401 A4
R402 A4]</td><td>1 kHz/–70 dBs</td><td>REC
↓
PLAY</td><td>Note: Before starting the adjustments of this item, make sure that the adjustments of PB Freq. Response (item 8) and A/C head azimuth (section 2.7.11) were completed.
(Use a K-type tape for adjusting the frequency response.)
1) Set the switches as follows:
INPUT LEVEL SW : –60 dB
OUTPUT LEVEL SW : +4 dB
LIMITER SW : OFF
2) Set the REC LEVEL VR to the position to where it was set in the item 3.
3) Under the standard playback level (0 dB) of the 1 kHz signal with 600 Ω load, confirm that frequency characteristics of a self-recorded tape are within the following range.
<table>
<tr><th>50 Hz</th><th>100 Hz</th><th>1 kHz</th><th>10 kHz</th><th>15 kHz</th></tr>
<tr><td>+2
–10</td><td>±2</td><td>0 dB
(Ref.)</td><td>±2</td><td>+2.0
–3.0</td></tr>
</table>
(unit: dB)
4) If measured values are out of the range, perform the bias adjustment (item 15). In this case, bias should be 80 ± 20 Vp-p.</td></tr>
<tr><td>17</td><td>REC
Level</td><td>AUDIO OUT
(Load: 600 Ω)</td><td>R9 (CH-1)
(AUDIO)
R10 (CH-2)
(AUDIO)
[R9 F6
R10 F2]</td><td>1 kHz/–60 dBs</td><td>REC
↓
PLAY</td><td>1) Turn off the LIMITER SW.
2) Set the REC LEVEL VR on the front panel to the level to obtain +4 dBm output in the REC mode (the meter reads "0").
3) Operate recording in the above condition and repeat playing it back and recording again.
4) Adjust R9 and R10 so that playback level becomes +4 dBm ± 0.2 dB for both the channels.</td></tr>
<tr><td>18</td><td>Cross-talk
Cancel</td><td>TP14
(AUDIO)
[TP14 G2]</td><td>R8
(AUDIO)
[R8 G1]
L2
(AUDIO)
[L2 H1]</td><td>1 kHz/–60 dBs
(AUDIO-1)</td><td>AUDIO
DUB</td><td>Notes:
• As an alignment tape for this adjustment, prepare non-signal recorded one for both channels.
• For this adjustment, use a tape on which a control pulse has been recorded (the CTL indicator does not light).
1) Switch off the LIMITER SW.
2) Make the line input for AUDIO-2 open.
3) Adjust R8 to minimize cross-talk in the AUDIO DUB mode. Next, adjust L2 so that leakage becomes less than –44 dBs with no signal input.</td></tr>
</table>

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
19	Audio Dub. Noise	TP27 (CH-1) (AUDIO) TP28 (CH-2) (AUDIO) [TP27 F5 TP28 E2]	R556 (CH-1) (AUDIO) R557 (CH-2) (AUDIO) [R556 F4 R557 F1]	No signal	REC ↓ PLAY ↓ STOP	1) Perform non-signal recording and play back the tape. 2) Connect an audio tester to TP27 and TP28. 3) Adjust R556 and R557 repeating PLAY and STOP operations so that the output peak level becomes minimum as the mode is changed from PLAY to STOP. 
		TP27 (CH-1) (AUDIO) TP28 (CH-2) (AUDIO) [TP27 F5 TP28 E2] TP405 (AUDIO) [TP405 A1]	R556 (CH-1) (AUDIO) R557 (CH-2) (AUDIO) [R556 F4 R557 F1]	No signal	REC ↓ PLAY ↓ STOP	**• When a storage oscilloscope is used:** 1) Perform non-signal recording and play back the tape. 2) Trigger the oscilloscope externally with signal from TP405 (AUDIO). 3) Adjust R556 and R557 repeating PLAY and STOP operations so that level fluctuation 50 msec after the triggering is within ±20 mVp-p as the mode is changed from PLAY to STOP.



(20 mV/DIV, 50 msec/DIV)

OR



(20 mV/DIV, 50 msec/DIV)

SECTION 4
CHARTS AND DIAGRAMS

4.1 KEY TO ABBREVIATIONS

A ACC : Automatic Color Control
ADD : Adder
ADC : Analog to Digital Converter
ADJ : Adjustment
A DUB : Audio Dubbing
AE : Audio Erase
AEF : Automatic Edition Function
AFC : Automatic Frequency Control
AFT : Automatic Fine Tuning
AGC : Automatic Gain Control
AH : Audio Head
AL : After Loading
ALC : Automatic Level Control
ALM : Alarm
AM : Amplitude Modulation
AMP : Amplifier
ANT : Antenna
APC : Automatic Phase Control
APL : Average Picture Level
ASSEM : Assembly
ASS'Y : Assembly
ATT : Attenuator
AUTO : Automatic
AUX : Auxiliary
AUD : Audio

B B : Brake
BAL : Balance
BATT : Battery
BCD : Binary Coded Decimal
BEG : Beginning
BFP : Burst Flag Pulse
BIT : Binary Digit
BLK : Black
BLU : Blue
BNC : Bayonet connector
BPF : Bandpass Filter
BRN : Brown
BRT : Brightness
B. SOL : Brake Solenoid
B/W : Black and White

C C : Ceramic
CAP : Capstan
CASS : Cassette
CF : Ceramic Filter, color Frame
CC : Cassette compartment
CE : Chip Enable
CH : Channel
CHROMA : Chrominance
CLK : Clock
CLR : Clear
CMD : Command
CNT : Count, Counter
CONV : Converter
COL : Color
COM : Common
COMP : Comparator
Composite
Compensation
CONN : Connector
CT : Ceramic Trap
CTC : Crosstalk Cancel
CTL : Control

D D : Drum
DAC : Dightal to Analog Converter
DD : Direct Drive
DEC : Decoder
DEMOD : Demodulator
DET : Detector
DEV : Deviation
DFRS : Drum Free RUN STOP
DIF TRANS : Differential Transformer
DISCR : Discriminator
DL : Delay Line
DOC : Dropout Compensator
DRUM FF : Drum Flip Flop
DUB : Dubbing

E E : Edit, Erase
EDP : Electronic Data Processing
E-E : Electric to Electric
EF : Emitter-Follower
EMPHA : Emphasis
EMG : Emergency
ENC : Encoder
EN : Enable
EQ : Equalizer
ESNS : End Sensor
EXP : Expander
EXT : External

F FE : Full Erase
FF : Fast Forward
Flipflop
FG : Frequency Generator
FM : Frequency Modulation
FMA : FM Audio
FREQ : Frequency
F-V CONV : Frequency to Voltage Converter
FWD : Forward

G GDL : Grass Delay Line
GEN LOCK : Generator Lock
GND : Ground
GRN : Green
GRY : Gray

H H : High, Horizontal
HG : Hall Generator
HPF : Highpass Filter

I IF : Intermediate Frequency
IFT : Intermediate Frequency Transformer
IND : Indicator
INH : Inhibit
INS : Insert
INT : Internal, Interrupt
INV : Inverter
I/O : Input/Output

L L : Low
LCD : Liquid Crystal Display
LE : Loading End
LED : Light Emitting Diode
LIN : Linearity
LIM : Limiter
LOAD : Loading
LP : Long Play
LPF : Lowpass Filter
LT : Loading Tension

M MAX : Maximum
MDA : Motor Drive Amplifier
MIC : Microphone
MIN : Minimum
MIX : Mixer
MM : Monostable Multivibrator
MOD : Modulator
MON : Monitor
MOS : Metal Oxide Semkonductor
MPX : Multiplexer
MS : Mode Select
MUT : Muting

N NC : Noise Cancel
NFB : Negative Feedback
NO : Normally Open

O OPAMP : Operational Amplifier
OP : Operation
ORN : Orange
OSC : Oscillator

P PB : Playback
PC : Photocoupler
PCM : Pulse Code Modulation
PGM : Program
PG : Pulse Generator
PI : Photo Interrupter
PLL : Phase Locked Loop
POS : Position
PR : Pinch Roller
PREV : Preview
PRL : Preroll
PU : Pickup
PWB : Printed Wiring Board

Q Q : Quality Factor

R RA : Resistor Array
: Random Access
RAM : Random Access Memory
REC : Recording
REG : Regulated
REV : Reverse
REW : Rewind
RF : Radio Frequency
RST : Reset
R/P : Record/Playback
RPT : Repeat
RT : Rotary Transformer
RY : Relay

S S : Search, Servo
SC : Subcarrier
SEAR : Search
SEL : Select
SENS : Sensor
SEP : Separator
SF : Source Follower
SFF : Short Fast Forward
SFWD : Search Forward
SI : Serial In
SIG : Signal
SO : Serial Out
SOL : Solenoid
SOS : Sound on Sound
SP : Standard Play
SR : Supply Reel
SREV : Search Reverse
SREW : Short Rewind
SSG : Sync Signal Generator
STL : Still
SUP : Supply
SYNC : Synchronization
SYSCON : System control

T TBC : Time Base Corrector
TC : Tension Control, Time Code
TDG : Time Date Generator
T. EALM : Tape End Alarm
TEN : Tension
TIM : Timing
TK : Tracking
TL : Time Lapse
TREC : Timer Record
TSW : Time Switch
TU : Take-up
TUR : Take-up Reel

U UNLD : Unloading
UNREG : Unregulated
UNSW : Unswitched

V V : Video, Vertical
VCO : Voltage Controlled Oscillator
VD : Vertical Drive
VXO : Variable Crystal Oscillator
VLT : Violet
VSCH : Variable Search

W WHT : White
WV : Working Voltage
WARN : Warning

X XTL : Crystal

Y Y : Luminance
YLW : Yellow

SECTION 4
CHARTS AND DIAGRAMS

I	IF	: Intermediate Frequency
	IFT	: Intermediate Frequency Transformer
	IND	: Indicator
	INH	: Inhibit
	INS	: Insert
	INT	: Internal, Interrupt
	INV	: Inverter
	I/O	: Input/Output
L	L	: Low
	LCD	: Liquid Crystal Display
	LE	: Loading End
	LED	: Light Emitting Diode
	LIN	: Linearity
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R	RA	: Resistor Array : Random Access
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	REW	: Rewind
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	R/P	: Record/Playback
	RPT	: Repeat
	RT	: Rotary Transformer
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S	S	: Search, Servo
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	SEL	: Select
	SENS	: Sensor
	SEP	: Separator
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	SO	: Serial Out
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	SR	: Supply Reel
	SREV	: Search Reverse
	SREW	: Short Rewind
	SSG	: Sync Signal Generator
	STL	: Still
	SUP	: Supply
	SYNC	: Synchronization
	SYSCON	: System control
T	TBC	: Time Base Corrector
	TC	: Tension Control, Time Code
	TDG	: Time Date Generator
	T. EALM	: Tape End Alarm
	TEN	: Tension
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	TK	: Tracking
	TL	: Time Lapse
	TREC	: Timer Record
	TSW	: Time Switch
	TU	: Take-up
	TUR	: Take-up Reel
U	UNLD	: Unloading
	UNREG	: Unregulated
	UNSW	: Unswitched
V	V	: Video, Vertical
	VCO	: Voltage Controlled Oscillator
	VD	: Vertical Drive
	VXO	: Variable Crystal Oscillator
	VLT	: Violet
	VSCH	: Variable Search
W	WHT	: White
	WV	: Working Voltage
	WARN	: Warning
X	XTL	: Crystal
Y	Y	: Luminance
	YLW	: Yellow

– INDEX OF CHARTS, DIAGRAMS AND PARTS LIST –

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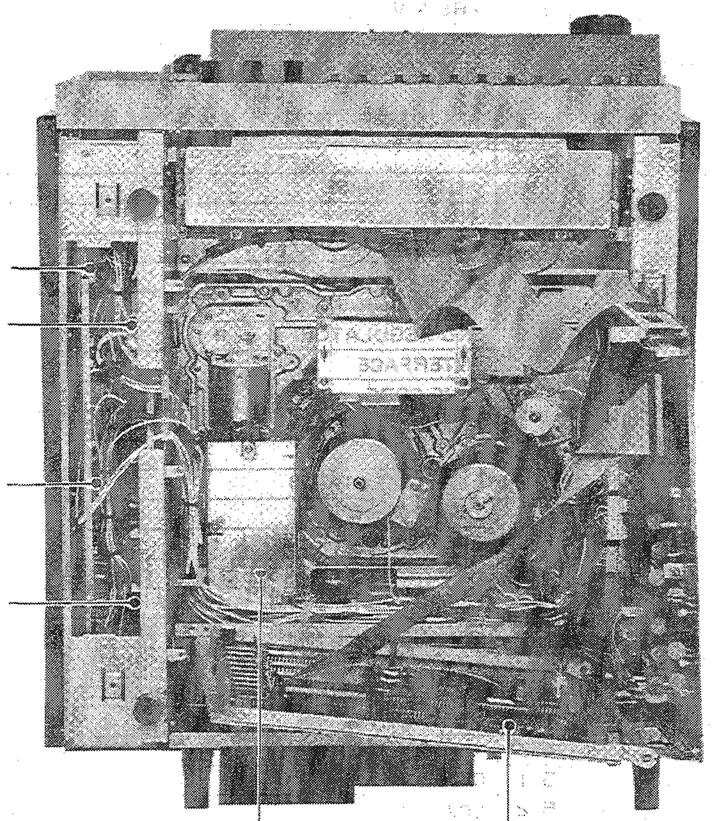
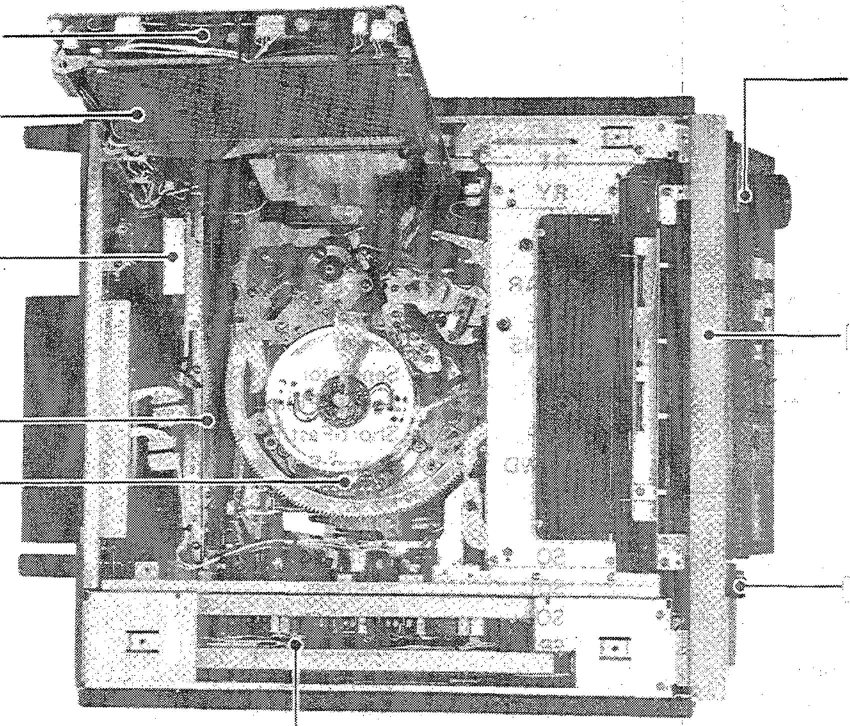
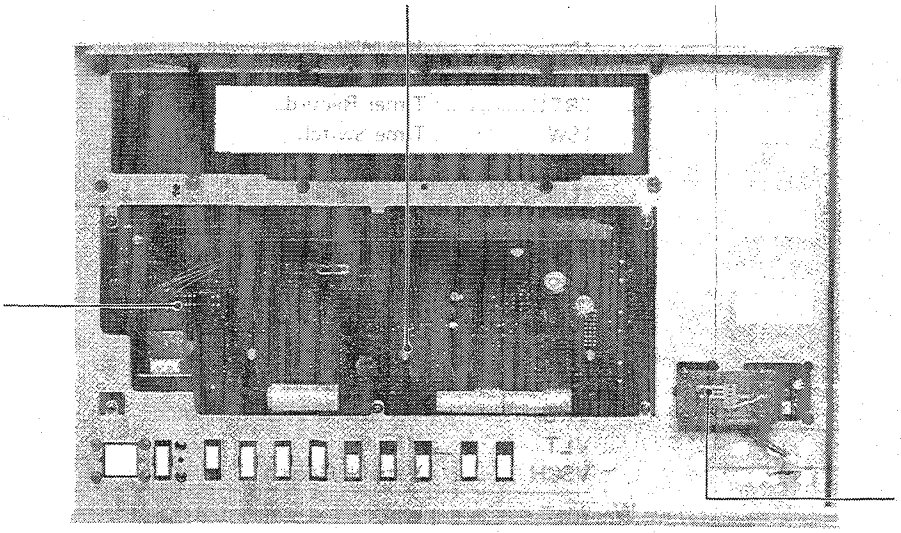
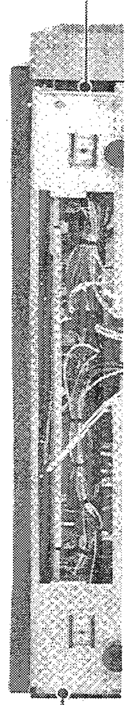
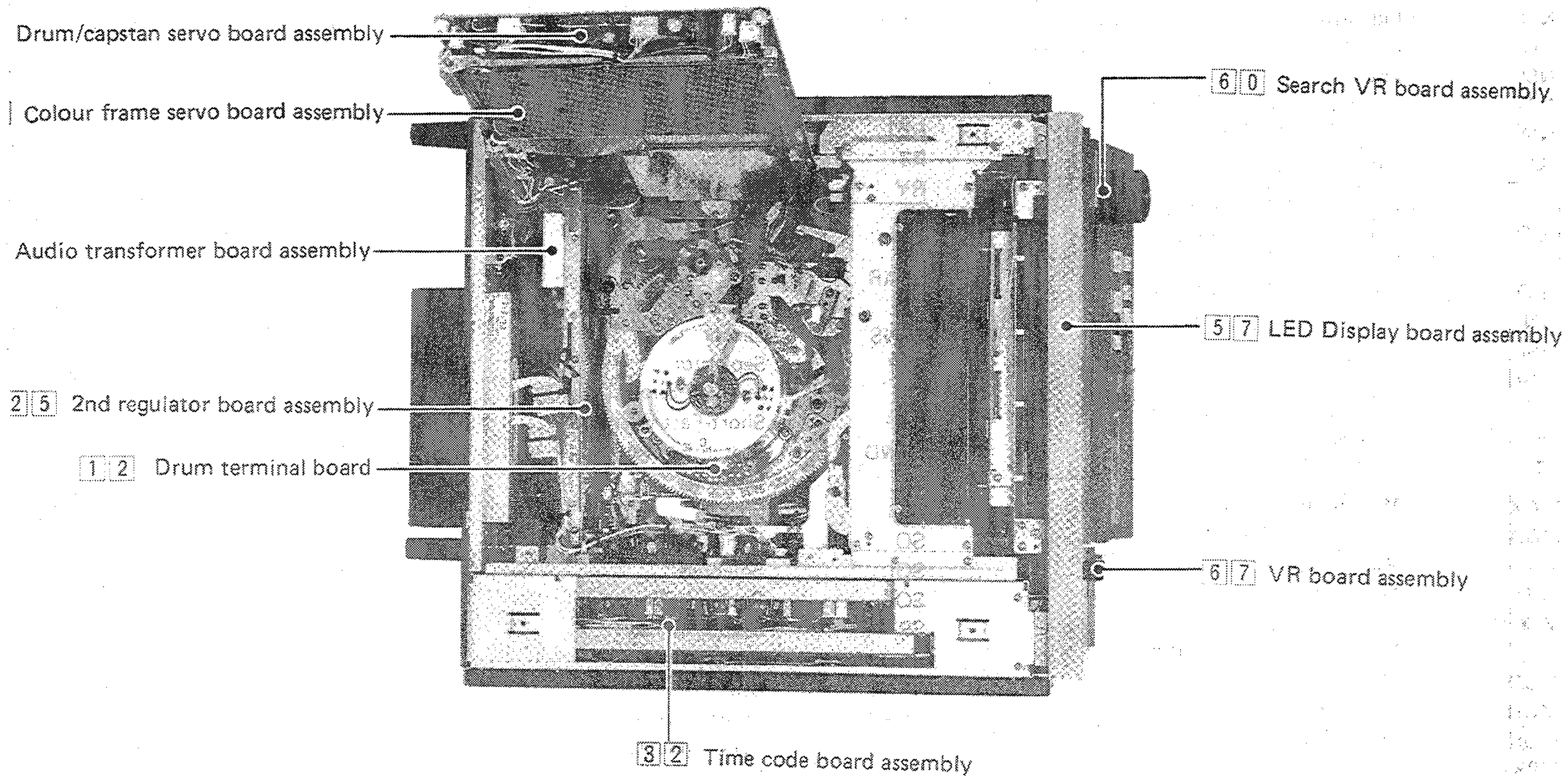
4.2 CIRCUIT BOARD LOCATIONS

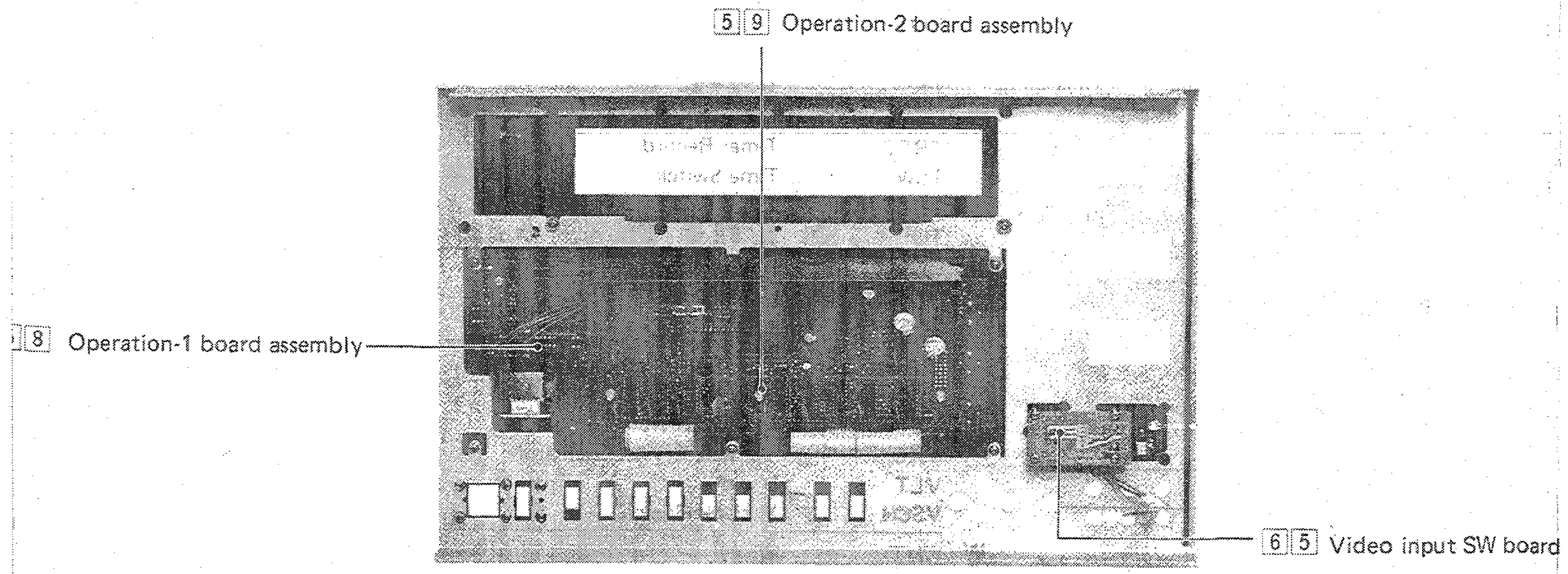

21 Reel servo board assembly
08 PAL CTL board assembly
02 Y/C Out board assembly
01 Video REC/PB board assembly
28 Interface board assembly
11 Pre-amp board assembly

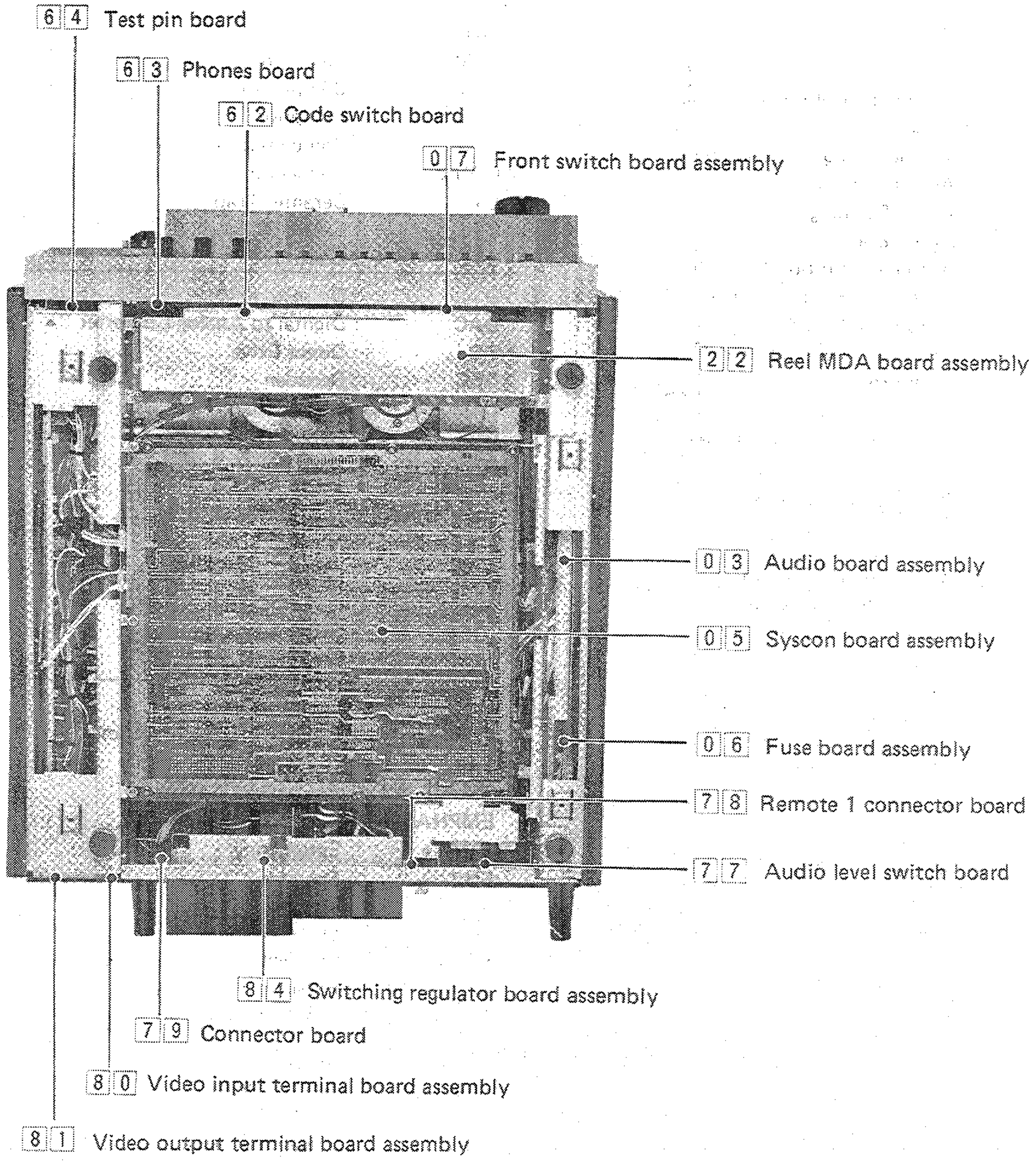

04 Drum/capstan servo board assembly
24 Colour frame servo board assembly
09 Audio transformer board assembly
25 2nd regulator board assembly
12 Drum terminal board
60 Search VR board assembly
57 LED Display board assembly
67 VR board assembly
32 Time code board assembly


59 Operation-2 board assembly
58 Operation-1 board assembly
65 Video input SW board




Drum/capstan servo board assembly
Colour frame servo board assembly
Audio transformer board assembly
25 2nd regulator board assembly
12 Drum terminal board
60 Search VR board assembly
57 LED Display board assembly
67 VR board assembly
32 Time code board assembly


59 Operation-2 board assembly
8 Operation-1 board assembly
65 Video input SW board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63 Phones board
62 Code switch board
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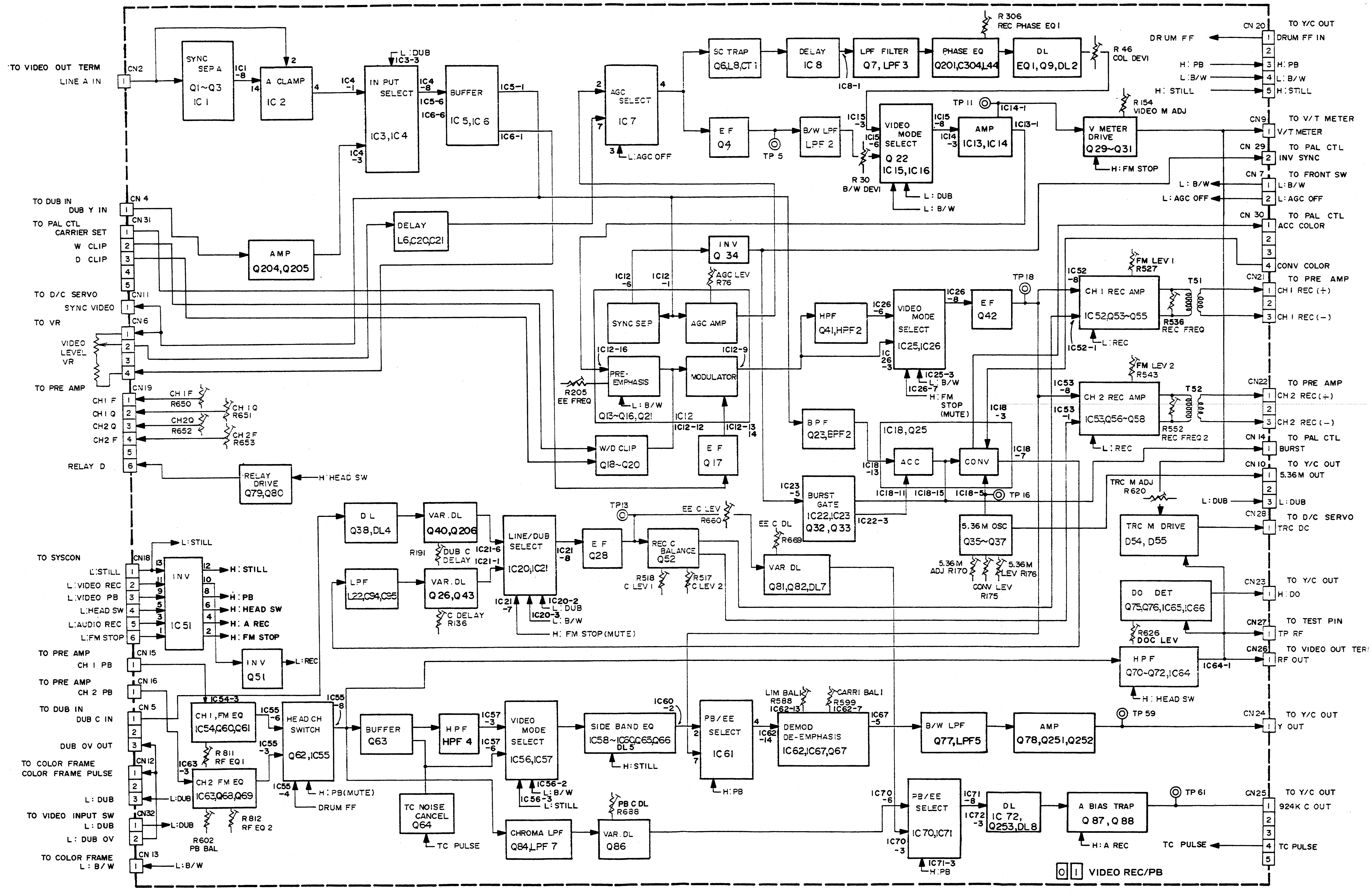
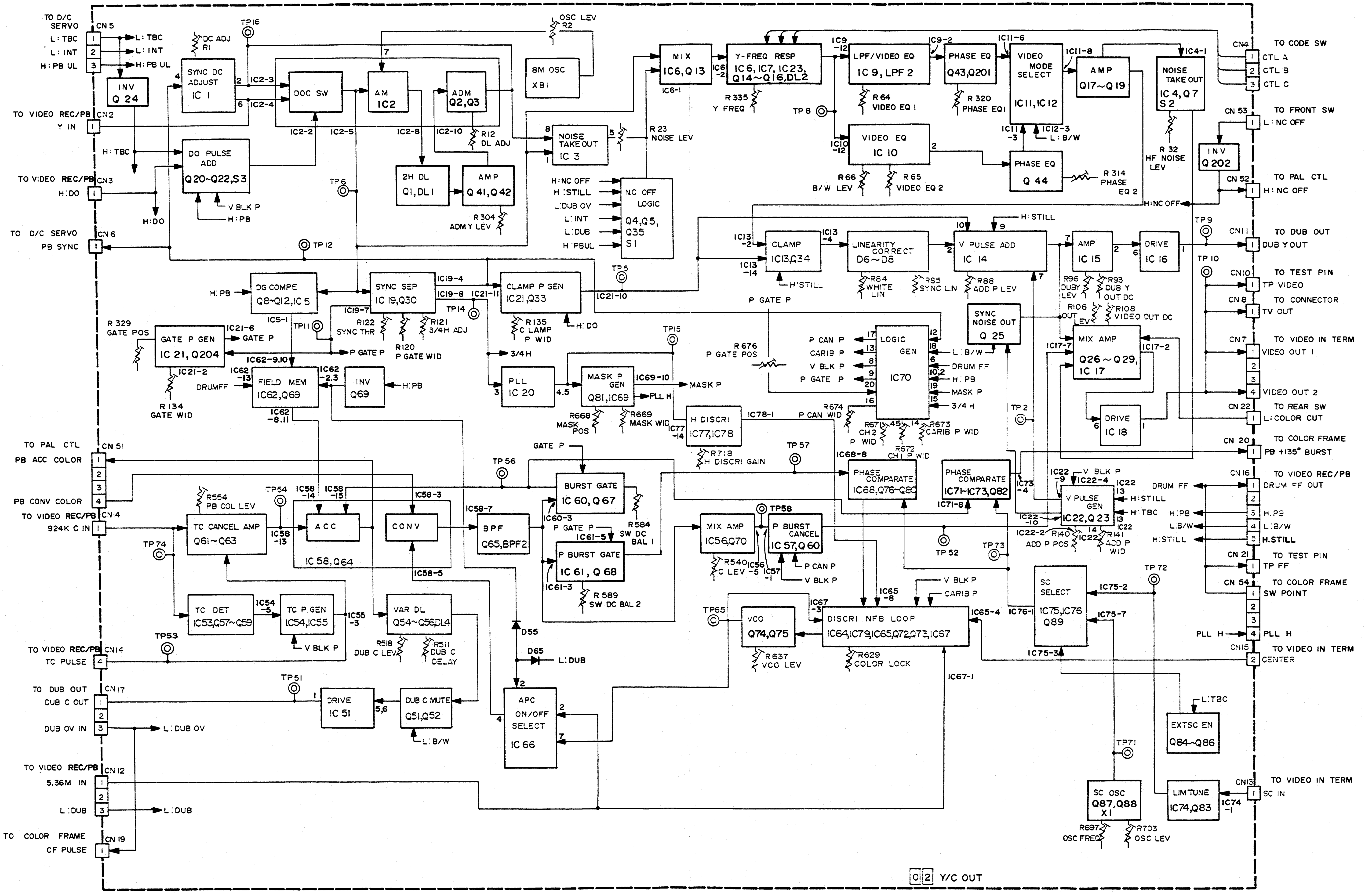
22 Reel MDA board assembly
03 Audio board assembly
05 Syscon board assembly
06 Fuse board assembly
78 Remote 1 connector board
77 Audio level switch board
84 Switching regulator board assembly
79 Connector board
80 Video input terminal board assembly
81 Video output terminal board assembly

4.3 VIDEO REC/PB BLOCK DIAGRAM



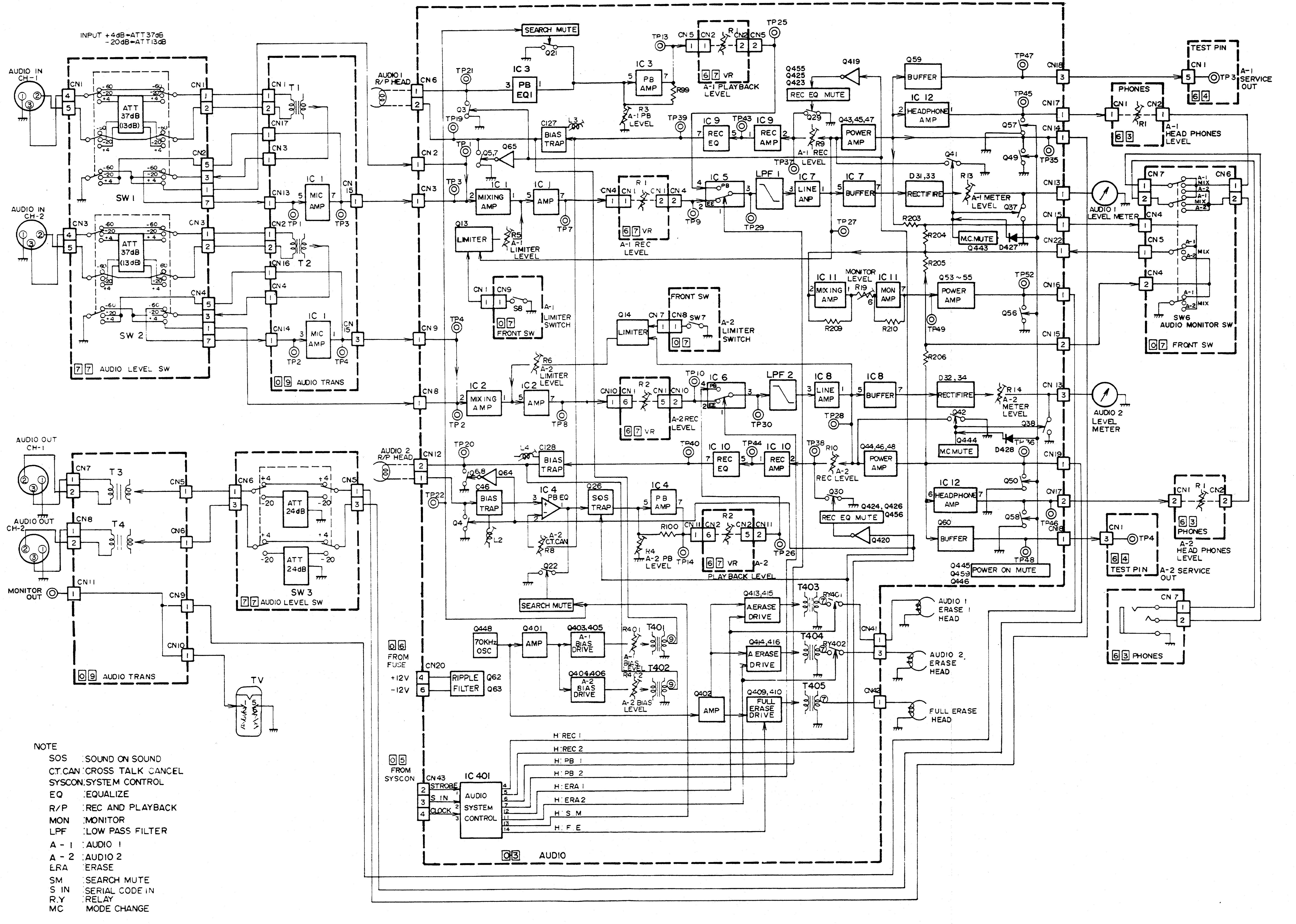
TO VIDEO OUT TERM
LINE A IN
CN2
SYNC SEP A
Q1~Q3
IC 1
IC1 -8
14
A CLAMP
IC 2
2
4
IC4 -1
L:DUB
IC3-3
IN PUT SELECT
IC4 -8
IC5-6
IC6-6
IC3, IC4
IC4 -3
BUFFER
IC 5, IC 6
IC5-1
IC6-1
AGC SELECT
IC 7
3
L:AGC OFF
SC TRAP
Q6, L8, CT1
DELAY
IC 8
IC8-1
LPF FILTER
Q7, LPF 3
R 306
REC PHASE EQ I
PHASE EQ
Q201, C304, L44
DL
EQ 1, Q9, DL 2
R 46
COL DEVI
DRUM FF
CN 20
TO Y/C OUT
DRUM FF IN
H: PB
L: B/W
H: STILL
E F
Q4
TP 5
B/W LPF
LPF 2
R 30
B/W DEVI
IC15 -3
IC15 -6
VIDEO MODE SELECT
Q 22
IC 15, IC 16
L: DUB
L: B/W
IC15 -8
IC14 -3
TP 11
IC14-1
AMP
IC13, IC 14
IC13-1
R 154
VIDEO M ADJ
V METER DRIVE
Q29~Q31
H: FM STOP
CN9
TO V/T METER
V/T METER
CN 29
TO PAL CTL
INV SYNC
CN 7
TO FRONT SW
L: B/W
L: AGC OFF
CN 30
TO PAL CTL
ACC COLOR
CONV COLOR
TO DUB IN
DUB Y IN
CN 4
TO PAL CTL
CARRIER SET
W CLIP
D CLIP
CN 31
AMP
Q204, Q205
DELAY
L6, C20, C21
INV
Q 34
IC12 -6
IC12 -1
AGC LEV
R76
SYNC SEP
AGC AMP
IC12-16
IC12-9
PRE-EMPHASIS
L: B/W
MODULATOR
R205
EE FREQ
Q13~Q16, Q21
IC12
IC12-12
IC12-13
14
W/D CLIP
Q18~Q20
E F
Q 17
TO D/C SERVO
SYNC VIDEO
CN11
TO VR
CN6
VIDEO LEVEL VR
TO PRE AMP
CN19
CH1 F
CH1 Q
CH2 Q
CH2 F
CH 1 F
R650
CH 1 Q
R651
CH2Q
R652
CH 2 F
R653
RELAY D
RELAY DRIVE
Q79, Q80
H: HEAD SW
HPF
Q41, HPF2
IC26 -6
VIDEO MODE SELECT
IC25, IC26
IC 26 -3
IC25-3
L: B/W
IC26-7
H: FM STOP (MUTE)
IC26 -8
E F
Q42
TP 18
IC52 -8
FM LEV 1
R527
CH 1 REC AMP
IC52, Q53~Q55
R536
REC FREQ
L: REC
IC52-1
T51
CN21
TO PRE AMP
CH 1 REC (+)
CH 1 REC (−)
BPF
Q23, BPF2
IC18, Q25
IC18 -13
ACC
CONV
IC18 -3
IC18 -7
IC18-11
IC18-15
IC18-5
TP 16
FM LEV 2
R543
IC53 -8
IC53 -1
CH 2 REC AMP
IC53, Q56~Q58
R552
REC FREQ 2
L: REC
T52
CN22
TO PRE AMP
CH2 REC (+)
CH2 REC (−)
CN 14
TO PAL CTL
BURST
CN 10
TO Y/C OUT
5.36M OUT
L: DUB
CN28
TO D/C SERVO
TRC DC
IC23 -5
BURST GATE
IC22, IC23
Q32, Q33
IC22-3
5.36M OSC
Q35~Q37
5.36M ADJ R170
5.36M LEV R176
CONV LEV R175
TRC M ADJ
R620
TRC M DRIVE
D54, D55
D L
Q38, DL4
VAR. DL
Q40, Q206
R191
DUB C DELAY
IC21-6
IC21-1
LINE/DUB SELECT
IC20, IC21
IC21 -8
IC21 -7
IC20-2
L: DUB
IC20-3
L: B/W
H: FM STOP (MUTE)
LPF
L22, C94, C95
VAR. DL
Q 26, Q43
C DELAY
R136
E F
Q28
TP13
EE C LEV
R660
REC C BALANCE
Q52
R518
C LEV 1
R517
C LEV 2
EE C DL
R669
VAR DL
Q81, Q82, DL7
DO DET
Q75, Q76, IC65, IC66
CN23
TO Y/C OUT
H: DO
R626
DOC LEV
CN27
TO TEST PIN
TP RF
CN26
TO VIDEO OUT TERM
RF OUT
HPF
Q70~Q72, IC64
IC64-1
H: HEAD SW
TO SYSCON
CN18
L: STILL
L: VIDEO REC
L: VIDEO PB
L: HEAD SW
L: AUDIO REC
L: FM STOP
L: STILL
INV
IC 51
H: STILL
H: PB
H: HEAD SW
H: A REC
H: FM STOP
INV
Q51
L: REC
TO PRE AMP
CH 1 PB
CN 15
TO PRE AMP
CH 2 PB
CN 16
TO DUB IN
DUB C IN
CN 5
DUB OV OUT
TO COLOR FRAME
COLOR FRAME PULSE
CN12
L: DUB
TO VIDEO INPUT SW
L: DUB
L: DUB OV
CN32
TO COLOR FRAME
L: B/W
CN 13
IC54-3
CH 1, FM EQ
IC54, Q60, Q61
R 811
RF EQ 1
IC63 -3
CH2 FM EQ
IC63, Q68, Q69
R812
RF EQ 2
R602
PB BAL
IC55 -6
IC55 -3
IC55 -8
IC55 -4
HEAD CH SWITCH
Q62, IC55
H: PB (MUTE)
DRUM FF
BUFFER
Q63
TC NOISE CANCEL
Q64
TC PULSE
HPF
HPF 4
IC57 -3
IC57 -6
VIDEO MODE SELECT
IC56, IC57
IC56-2
L: B/W
IC56-3
L: STILL
CHROMA LPF
Q84, LPF 7
PB C DL
R688
VAR. DL
Q86
SIDE BAND EQ
IC58~IC60, Q65, Q66
DL 5
H: STILL
IC60 -2
PB/EE SELECT
IC 61
H: PB
LIM BAL
R588
IC62-13
CARRI BAL 1
R599
IC62-7
IC62 -14
DEMOD DE-EMPHASIS
IC62, IC67, Q67
IC67 -5
B/W LPF
Q77, LPF5
AMP
Q78, Q251, Q252
TP 59
CN24
TO Y/C OUT
Y OUT
IC70 -6
IC70 -3
PB/EE SELECT
IC 70, IC71
IC71-3
H: PB
IC71 -8
IC72 -3
DL
IC 72, Q253, DL 8
A BIAS TRAP
Q 87, Q 88
H: A REC
TP 61
CN25
TO Y/C OUT
924K C OUT
TC PULSE
TC PULSE
01 VIDEO REC/PB

4.4 Y/C OUT BLOCK DIAGRAM



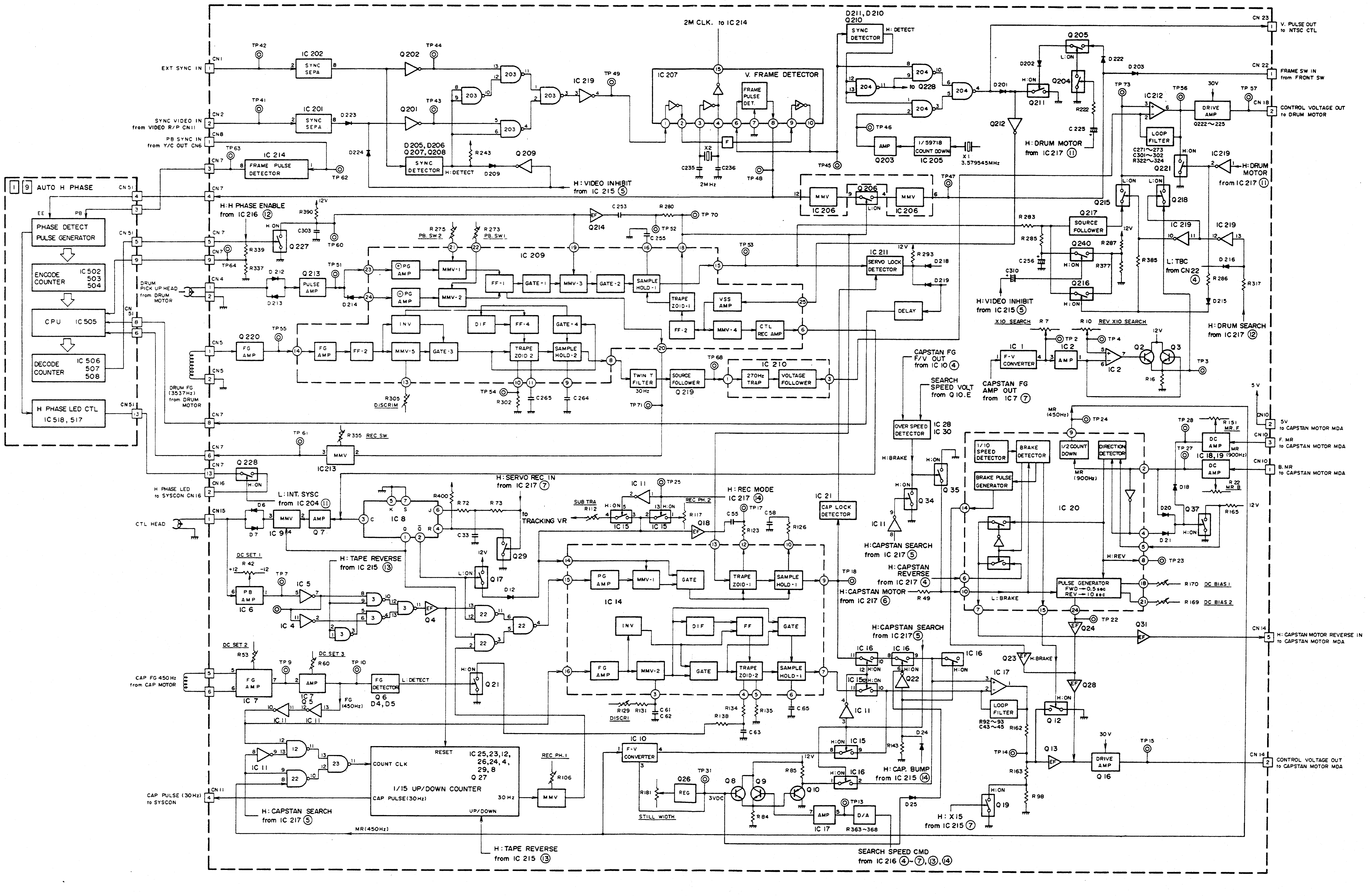
TO D/C SERVO
CN5
L: TBC
L: INT
H: PB UL
INV Q 24
TO VIDEO REC/PB CN2
Y IN
H: TBC
TO VIDEO REC/PB CN3
H: DO
TO D/C SERVO CN6
PB SYNC
DC ADJ R1
SYNC DC ADJUST IC 1
DO PULSE ADD Q20~Q22, S3
V BLK P
H: PB
TP16
IC2-3
IC2-4
DOC SW
AM IC2
ADM Q2, Q3
IC2-2
IC2-5
IC2-8
IC2-10
R12 DL ADJ
2H DL Q1, DL1
AMP Q41, Q42
R304 ADM Y LEV
TP6
TP12
OSC LEV R2
8M OSC XB1
NOISE TAKE OUT IC 3
R 23 NOISE LEV
H: NC OFF
H: STILL
L: DUB OV
L: INT
L: DUB
H: PBUL
N.C OFF LOGIC Q4, Q5, Q35 S1
MIX IC6, Q 13
IC6-1
IC6-2
Y-FREQ RESP IC6, IC7, IC23, Q14~Q16, DL2
R 335 Y FREQ
TP8
IC9-12
LPF/VIDEO EQ IC 9, LPF 2
R 64 VIDEO EQ 1
IC9-2
PHASE EQ Q43, Q201
R 320 PHASE EQ1
IC11-6
VIDEO MODE SELECT IC11, IC12
IC11-8
IC11-3
IC12-3
L: B/W
AMP Q17~Q19
NOISE TAKE OUT IC 4, Q 7 S 2
IC4-1
R 32 HF NOISE LEV
IC10-12
VIDEO EQ IC 10
R 66 B/W LEV
R 65 VIDEO EQ 2
PHASE EQ Q 44
R 314 PHASE EQ 2
CN4
TO CODE SW
CTL A
CTL B
CTL C
CN 53
TO FRONT SW
L: NC OFF
INV Q 202
CN 52
TO PAL CTL
H: NC OFF
DG COMPE Q8~Q12, IC 5
H: PB
SYNC SEP IC 19, Q30
IC19-4
IC19-8
IC19-7
R122 SYNC THR
R120 P GATE WID
R121 3/4H ADJ
TP11
TP14
CLAMP P GEN IC21, Q33
IC21-11
IC21-10
R135 C LAMP P WID
H: DO
TP5
R 329 GATE POS
GATE P GEN IC 21, Q204
IC21-6
GATE P
IC21-2
R 134 GATE WID
IC5-1
P GATE P
IC62-9.10
IC62-13
FIELD MEM IC62, Q69
IC62-2.3
INV Q69
DRUMFF
IC62-8.11
3/4H
PLL IC 20
4.5
TP15
MASK P GEN Q81, IC69
IC69-10
MASK P
PLL H
R668 MASK POS
R669 MASK WID
IC77-14
H DISCRI IC77, IC78
IC78-1
R718 H DISCRI GAIN
IC13-2
IC13-14
CLAMP IC13, Q34
H: STILL
IC13-4
LINEARITY CORRECT D6~D8
R84 WHITE LIN
R85 SYNC LIN
V PULSE ADD IC 14
R88 ADD P LEV
AMP IC 15
DRIVE IC 16
TP9
CN11
TO DUB OUT
DUB Y OUT
TP 10
CN10
TO TEST PIN
TP VIDEO
CN8
TO CONNECTOR
TV OUT
R96 DUB Y LEV
R93 DUB Y OUT DC
R106 OUT LEV
R108 VIDEO OUT DC
SYNC NOISE OUT Q 25
MIX AMP Q26~Q29, IC 17
IC17-7
IC17-2
CN7
TO VIDEO IN TERM
VIDEO OUT 1
VIDEO OUT 2
DRIVE IC 18
CN 22
TO REAR SW
L: COLOR CUT
TP 2
P GATE P
R 676 P GATE POS
P CAN P
CARIB P
V BLK P
P GATE P
LOGIC GEN IC70
L: B/W
DRUM FF
H: PB
MASK P
3/4 H
R674 P CAN WID
R671 CH2 P WID
R672 CH1 P WID
R673 CARIB P WID
CN 20
TO COLOR FRAME
PB +135° BURST
TO PAL CTL CN 51
PB ACC COLOR
PB CONV COLOR
TO VIDEO REC/PB CN14
924K C IN
R554 PB COL LEV
TP54
TC CANCEL AMP Q61~Q63
IC58-14
IC58-15
IC58-13
ACC
CONV
IC58-3
IC 58, Q64
IC58-5
IC58-7
BPF Q65, BPF2
TP56
GATE P
BURST GATE IC 60, Q 67
IC60-3
R584 SW DC BAL 1
P GATE P
IC61-5
P BURST GATE IC 61, Q 68
IC61-3
R 589 SW DC BAL 2
TP57
IC68-8
PHASE COMPARATE IC68, Q76~Q80
PHASE COMPARATE IC71~IC73, Q82
IC71-8
IC73-4
MIX AMP IC56, Q70
R540 C LEV
IC56-5
IC57-1
TP58
P BURST CANCEL IC 57, Q 60
P CAN P
V BLK P
TP 52
TP 73
IC22-9
V BLK P
IC22-4
V PULSE GEN IC22, Q 23
H: STILL
H: TBC
IC22-10
IC22-2
R140 ADD P POS
R141 ADD P WID
CN16
TO VIDEO REC/PB
DRUM FF
DRUM FF OUT
H: PB
L: B/W
H: STILL
CN 21
TO TEST PIN
TP FF
CN 54
TO COLOR FRAME
SW POINT
PLL H
CN15
TO VIDEO IN TERM
CENTER
TP74
TC DET IC53, Q57~Q59
IC54-5
TC P GEN IC54, IC55
V BLK P
IC55-3
VAR DL Q54~Q56, DL4
R518 DUB C LEV
R511 DUB C DELAY
D55
D65
L: DUB
TP53
TO VIDEO REC/PB CN14
TC PULSE
TO DUB OUT CN17
DUB C OUT
DUB OV IN
L: DUB OV
TP51
DRIVE IC 51
5,6
DUB C MUTE Q51, Q52
L: B/W
APC ON/OFF SELECT IC 66
TO VIDEO REC/PB CN 12
5.36M IN
L: DUB
TO COLOR FRAME CN 19
CF PULSE
TP65
VCO Q74, Q75
R 637 VCO LEV
IC67-3
DISCRI NFB LOOP IC64, IC79, IC65, Q72, Q73, IC67
V BLK P
CARIB P
IC65-8
IC65-4
R629 COLOR LOCK
IC67-1
SC SELECT IC75, IC76 Q89
IC75-2
IC75-7
IC76-1
IC75-3
TP 72
TP71
SC OSC Q87, Q88 X1
R697 OSC FREQ
R703 OSC LEV
L: TBC
EXTSC EN Q84~Q86
LIM TUNE IC74, Q83
IC74-1
CN13
TO VIDEO IN TERM
SC IN
02 Y/C OUT
6
5
4
3
2
1
A
B
C
4-4
4-4
E
F
G
H

4.5 AUDIO BLOCK DIAGRAM


INPUT +4dB→ATT 37dB
-20dB→ATT 13dB
AUDIO IN CH-1
AUDIO IN CH-2
CN1
CN2
CN3
CN4
ATT 37dB (13dB)
-60
-20
+4
SW 1
SW 2
77 AUDIO LEVEL SW
T 1
T 2
CN17
CN13
CN2
CN16
CN14
CN 15
TP1
TP2
TP3
TP4
IC 1 MIC AMP
09 AUDIO TRANS
AUDIO 1 R/P HEAD
CN6
CN9
CN8
SEARCH MUTE
Q21
TP21
IC 3 PB EQ1
Q3
TP19
Q5,7
Q65
IC 1 MIXING AMP
IC 1 AMP
TP7
Q13 LIMITER
R5 A-1 LIMITER LEVEL
CN 1 CN9 S8
07 FRONT SW
A-1 LIMITER SWITCH
IC 3 PB AMP
R99
R3 A-1 PB LEVEL
TP13
TP25
CN5 CN2 R1 CN2 CN5
67 VR
A-1 PLAYBACK LEVEL
C127 BIAS TRAP
L3
TP39
IC 9 REC EQ
TP43
IC 9 REC AMP
Q455 Q425 Q423
REC EQ MUTE
Q419
Q29
R9 A-1 REC LEVEL
Q43,45,47 POWER AMP
TP37
CN4 CN1 R1 CN1 CN4
67 VR
A-1 REC LEVEL
TP9
IC 5 PB EE
TP29
LPF 1
IC 7 LINE AMP
IC 7 BUFFER
TP27
Q59 BUFFER
IC 12 HEADPHONE AMP
D31,33 RECTIFIRE
Q41
R13 A-1 METER LEVEL
Q37
R203
R204
R205
R206
MC MUTE
Q443
D427
IC 11 MIXING AMP
MONITOR LEVEL R19
IC 11 MON AMP
R209
R210
Q53~55 POWER AMP
TP49
TP52
Q56
TP47
TP45
Q57
Q49
TP35
CN18
CN17
CN14
CN13
CN15
CN22
CN16
CN 15
Q14 LIMITER
FRONT SW
CN 7 CN8 SW7
07
A-2 LIMITER SWITCH
R6 A-2 LIMITER LEVEL
IC 2 MIXING AMP
IC 2 AMP
TP2
TP8
CN10 CN1 R2 CN1 CN10
67 VR
A-2 REC LEVEL
TP10
IC 6 PB EE
TP30
LPF 2
IC 8 LINE AMP
IC 8 BUFFER
TP28
D32,34 RECTIFIRE
R14 A-2 METER LEVEL
Q42
Q444 MC MUTE
Q38
D428
TP36
CN 13
CN19
AUDIO 2 R/P HEAD
CN12
TP20
L4 C128 BIAS TRAP
Q6,8
Q64
TP22
C46 BIAS TRAP
Q4
L2
IC 4 PB EQ
R8 A-2 CT.CAN
Q22
SEARCH MUTE
Q26 SOS TRAP
IC 4 PB AMP
TP40
IC 10 REC EQ
TP44
IC 10 REC AMP
TP38
R10 A-2 REC LEVEL
Q44,46,48 POWER AMP
Q30
Q424, Q426 Q456
REC EQ MUTE
Q420
R100
R4 A-2 PB LEVEL
TP14
CN11 CN2 R2 CN2 CN11
67 VR
A-2 PLAYBACK LEVEL
TP26
IC 12 HEADPHONE AMP
Q50
Q58
TP46
Q60 BUFFER
TP48
Q445 Q459 Q446
POWER ON MUTE
TEST PIN
CN 1
TP 3
64
A-1 SERVICE OUT
PHONES
CN1 R1 CN2
63
A-1 HEAD PHONES LEVEL
AUDIO 1 LEVEL METER
CN7 CN6
A-1 MIX A-2 A-1 MIX A-2
CN4
CN5
CN4
A-1 A-2 MIX
SW6 AUDIO MONITOR SW
07 FRONT SW
AUDIO 2 LEVEL METER
CN1 R1 CN2
63 PHONES
A-2 HEAD PHONES LEVEL
CN1 TP4
64 TEST PIN
A-2 SERVICE OUT
CN 7
63 PHONES
AUDIO OUT CH-1
AUDIO OUT CH-2
CN7 T3
CN8 T4
CN5
CN6
MONITOR OUT
CN11
CN9
CN10
09 AUDIO TRANS
CN6 CN5
ATT 24dB
+4 -20
SW 3
77 AUDIO LEVEL SW
TV
Q448 70KHz OSC
Q401 AMP
Q403,405 A-1 BIAS DRIVE
R401 A-1 BIAS LEVEL
T401
Q404,406 A-2 BIAS DRIVE
R402 A-2 BIAS LEVEL
T402
Q402 AMP
Q413,415 A ERASE DRIVE
T403 RY401
Q414,416 A ERASE DRIVE
T404 RY402
Q409, 410 FULL ERASE DRIVE
T405
CN41
CN42
AUDIO 1 ERASE HEAD
AUDIO 2 ERASE HEAD
FULL ERASE HEAD
06 FROM FUSE
CN20
+12V
-12V
RIPPLE FILTER Q62 Q63
05 FROM SYSCON
CN43
STROBE
S IN
CLOCK
IC 401 AUDIO SYSTEM CONTROL
H: REC 1
H: REC 2
H: PB 1
H: PB 2
H: ERA 1
H: ERA 2
H: S M
H: F E
03 AUDIO

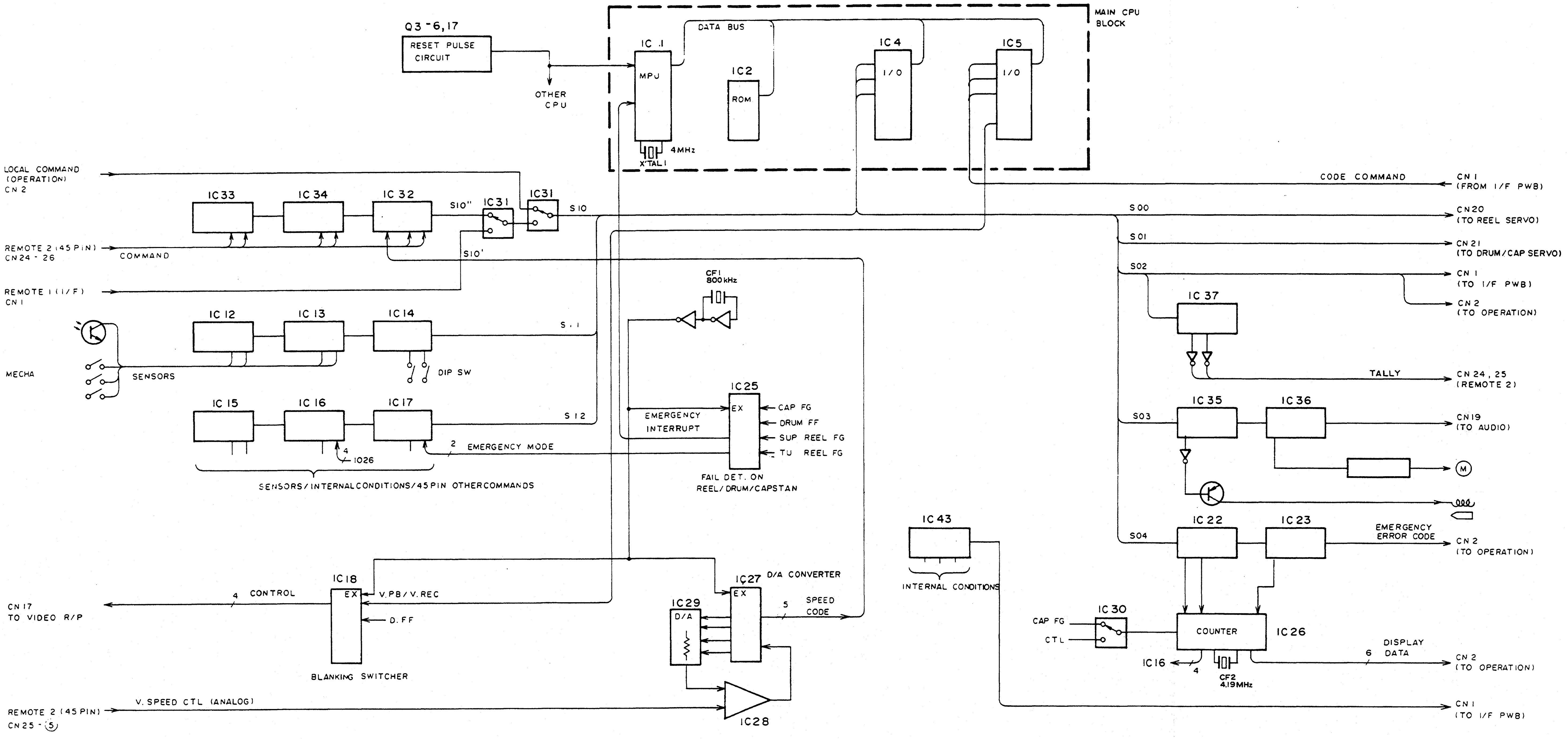
NOTE
SOS :SOUND ON SOUND
CT.CAN :CROSS TALK CANCEL
SYSCON :SYSTEM CONTROL
EQ :EQUALIZE
R/P :REC AND PLAYBACK
MON :MONITOR
LPF :LOW PASS FILTER
A - 1 :AUDIO 1
A - 2 :AUDIO 2
ERA :ERASE
SM :SEARCH MUTE
S IN :SERIAL CODE IN
R.Y :RELAY
MC :MODE CHANGE

4.6 DRUM/CAPSTAN SERVO BLOCK DIAGRAM

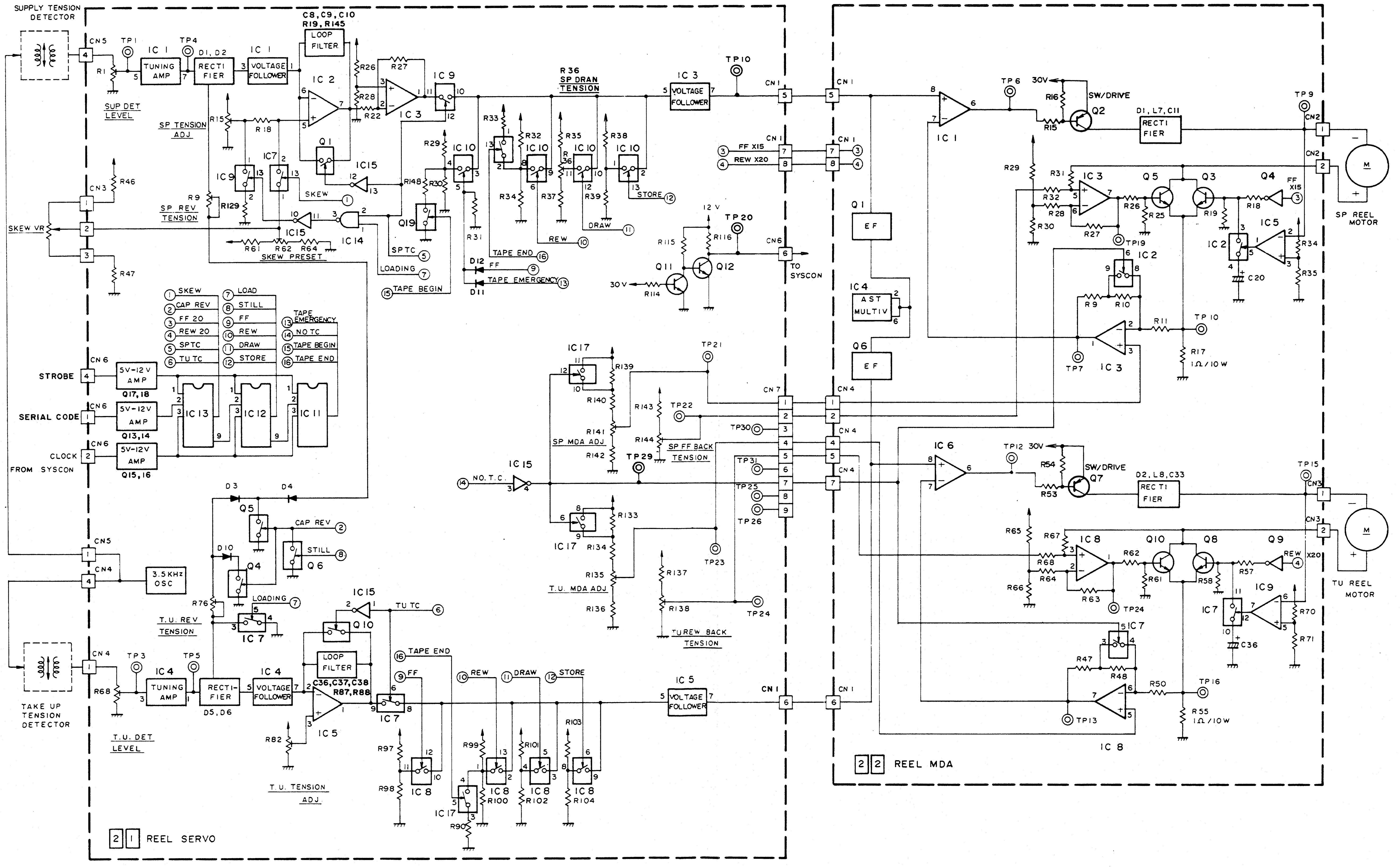


EXT SYNC IN
SYNC VIDEO IN from VIDEO R/P CN11
PB SYNC IN from Y/C OUT CN6
CN1
CN2
CN8
CN7
CN51
CN4
CN5
CN15
CN16
CN11
TP42
TP41
TP44
TP43
TP49
TP63
TP62
IC 202 SYNC SEPA
IC 201 SYNC SEPA
D223
D224
Q202
Q201
IC 214 FRAME PULSE DETECTOR
D205, D206 Q207, Q208 SYNC DETECTOR
H: DETECT
R243
D209
Q209
IC 219
H: VIDEO INHIBIT from IC 215 ⑤
2M CLK. to IC 214
IC 207
V. FRAME DETECTOR
FRAME PULSE DET.
X2
C235
C236
2MHz
TP48
D211, D210 Q210 SYNC DETECTOR H: DETECT
to Q228
TP46
AMP
Q203
1/59718 COUNT DOWN IC 205
X1 3.579545MHz
TP45
Q205
L: ON
D202
D222
D203
Q204
H: ON
Q211
D201
R222
C225
Q212
H: DRUM MOTOR from IC 217 ⑪
TP73
IC212
TP56
30V
TP57
DRIVE AMP Q222~225
LOOP FILTER
C271~273 C301~302 R322~324
Q221
IC219
H: DRUM MOTOR from IC 217 ⑪
CN 23 V. PULSE OUT to NTSC CTL
CN 22 FRAME SW IN from FRONT SW
CN 18 CONTROL VOLTAGE OUT to DRUM MOTOR
TP47
MMV IC 206
Q 206
MMV IC 206
Q215
Q218
1 9 AUTO H PHASE
EE
PB
PHASE DETECT PULSE GENERATOR
ENCODE COUNTER IC502 503 504
CPU IC505
DECODE COUNTER IC 506 507 508
H PHASE LED CTL IC518, 517
H: H PHASE ENABLE from IC 216 ⑫
R390
12V
C303
TP60
Q227
R339
R337
TP64
EF
Q214
C253
R280
TP70
TP52
C255
R 275 PB. SW 2
R 273 PB. SW1
IC 209
TP51
TP53
D 212
D213
Q213 PULSE AMP
D214
⊕PG AMP
⊖PG AMP
MMV-1
MMV-2
FF-1
GATE-1
MMV-3
GATE-2
SAMPLE HOLD-1
TRAPE ZOID-1
VSS AMP
FF-2
MMV-4
CTL REC AMP
DRUM PICK UP HEAD from DRUM MOTOR
IC 211 SERVO LOCK DETECTOR
R 293
D218
D219
DELAY
R283
R285
Q217 SOURCE FOLLOWER
Q240
R287
R377
R385
C256
C310
Q216
H: VIDEO INHIBIT from IC 215 ⑤
IC 219
L: TBC from CN22 ④
D216
R286
R317
D215
H: DRUM SEARCH from IC 217 ⑫
Q220 FG AMP
TP55
FG AMP
FF-2
INV
MMV-5
GATE-3
DIF
FF-4
GATE-4
TRAPE ZOID 2
SAMPLE HOLD-2
DRUM FG (3537Hz) from DRUM MOTOR
R305 DISCRIM
TP54
R302
C265
C264
TWIN T FILTER 30Hz
SOURCE FOLLOWER Q219
TP68
IC 210
270Hz TRAP
VOLTAGE FOLLOWER
TP71
CAPSTAN FG F/V OUT from IC 10 ④
SEARCH SPEED VOLT from Q 10. E
X10 SEARCH
R 7
R 10 REV X10 SEARCH
TP2
TP4
IC 1 F-V CONVERTER
IC 2 AMP
IC 2
Q2
Q3
R16
TP3
CAPSTAN FG AMP OUT from IC7 ⑦
TP 61
R355 REC SW
MMV IC213
Q 228
H: ON
H PHASE LED to SYSCON CN16
L: INT. SYSC from IC 204 ⑪
H: SERVO REC IN from IC 217 ⑦
CTL HEAD
D6
D7
MMV IC 9
AMP Q 7
R400
R 72
R 73
IC 8
to TRACKING VR
C33
Q29
DC SET 1
R 42
PB AMP IC 6
TP 7
IC 5
IC 4
H: TAPE REVERSE from IC 215 ⑬
Q17
D12
Q4
IC 11
TP25
SUB TRA R112
IC 15
REC PH. 2
R 117
Q18
H: REC MODE IC 217 ⑭
TP17
C55
C58
R123
R126
IC 14
PG AMP
MMV-1
GATE
TRAPE ZOID-1
SAMPLE HOLD-1
TP 18
IC 21 CAP LOCK DETECTOR
OVER SPEED DETECTOR IC 28 IC 30
H: BRAKE
Q 35
Q 34
IC 11
H: CAPSTAN SEARCH from IC 217 ⑤
H: CAPSTAN REVERSE from IC 217 ④
H: CAPSTAN MOTOR from IC 217 ⑥
R 49
MR (450Hz)
TP24
1/10 SPEED DETECTOR
BRAKE DETECTOR
1/2 COUNT DOWN
DIRECTION DETECTOR
MR (900Hz)
BRAKE PULSE GENERATOR
IC 20
H: REV
L: BRAKE
PULSE GENERATOR FWD→0.5 sec REV→10 sec
TP23
TP22
R170 DC BIAS 1
R169 DC BIAS 2
TP 28
R151 MR F
TP 27
DC AMP
IC 18, 19
R 22 MR B
D18
D20
Q 37
D21
R165
5V
CN10 5V to CAPSTAN MOTOR MDA
CN10 F. MR to CAPSTAN MOTOR MDA
CN10 B. MR to CAPSTAN MOTOR MDA
Q24
Q31
CN14 H: CAPSTAN MOTOR REVERSE IN to CAPSTAN MOTOR MDA
INV
DIF
FF
GATE
FG AMP
MMV-2
GATE
TRAPE ZOID-2
SAMPLE HOLD-1
R129 R131 DISCRI
C61 C62
R134
R135
C65
R138
C63
H: CAPSTAN SEARCH from IC 217 ⑤
IC 16
Q22
Q23 H: BRAKE
IC 17
LOOP FILTER
R92~93 C43~45
R162
Q 12
Q28
CAP FG 450Hz from CAP MOTOR
DC SET 2
R53
TP 9
DC SET 3
R60
TP 10
FG AMP IC 7
AMP IC 7
Q 5
FG DETECTOR Q 6 D4, D5
L: DETECT
FG (450Hz)
Q 21
IC 11
IC 25, 23, 12, 26, 24, 4, 29, 8 Q 27
RESET
COUNT CLK
1/15 UP/DOWN COUNTER
CAP PULSE (30Hz)
30 Hz
UP/DOWN
REC PH. 1
R106
MMV
CAP PULSE (30Hz) to SYSCON
H: CAPSTAN SEARCH from IC 217 ⑤
MR (450Hz)
H: TAPE REVERSE from IC 215 ⑬
IC 10 F-V CONVERTER
R181
Q26 REG
TP 31
3VDC
STILL WIDTH
Q8
Q9
R 84
R85
Q 10
12V
AMP IC 17
TP13
D/A R363~368
IC 15
IC 16
R143
D 24
H: CAP. BUMP from IC 215 ⑭
D 25
SEARCH SPEED CMD from IC 216 ④~⑦, ⑬, ⑭
TP14
R163
Q13
30 V
TP 15
DRIVE AMP Q 16
R 98
Q 19
H: X15 from IC 215 ⑦
CN 14 CONTROL VOLTAGE OUT to CAPSTAN MOTOR MDA

4.7 SYSCON BLOCK DIAGRAM

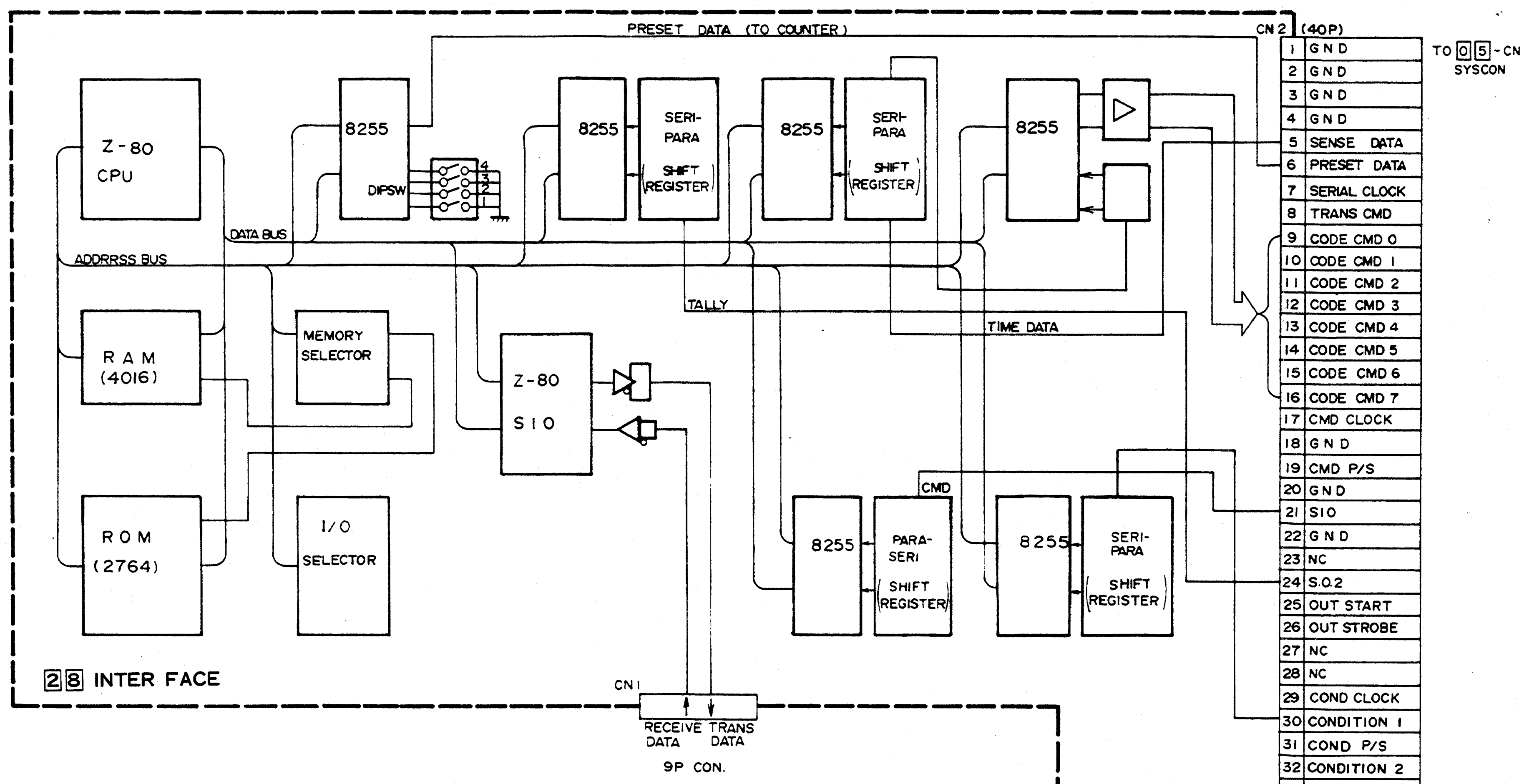

MAIN CPU BLOCK
DATA BUS
IC 1
MPU
IC2
ROM
IC4
I/O
IC5
I/O
4MHz
X'TAL 1
Q3 -6,17
RESET PULSE CIRCUIT
OTHER CPU
LOCAL COMMAND (OPERATION) CN 2
REMOTE 2 (45 PIN) CN24 - 26
COMMAND
REMOTE 1 (I/F) CN 1
IC33
IC34
IC32
S10"
IC31
IC31
S10
S10'
MECHA
SENSORS
IC 12
IC 13
IC 14
DIP SW
S 1
IC 15
IC 16
IC 17
S 12
4
IC26
2 EMERGENCY MODE
SENSORS/ INTERNAL CONDITIONS/45 PIN OTHERCOMMANDS
CF1 800kHz
IC25
EX
EMERGENCY INTERRUPT
CAP FG
DRUM FF
SUP REEL FG
TU REEL FG
FAIL DET. ON REEL/DRUM/CAPSTAN
CODE COMMAND
CN 1 (FROM I/F PWB)
S00
CN20 (TO REEL SERVO)
S01
CN 21 (TO DRUM/CAP SERVO)
S02
CN 1 (TO I/F PWB)
CN 2 (TO OPERATION)
IC 37
TALLY
CN 24, 25 (REMOTE 2)
S03
IC 35
IC 36
CN19 (TO AUDIO)
M
S04
IC 22
IC 23
EMERGENCY ERROR CODE
CN 2 (TO OPERATION)
IC 43
INTERNAL CONDITIONS
IC 30
CAP FG
CTL
COUNTER
IC 26
IC16
4
CF2 4.19MHz
6 DISPLAY DATA
CN 2 (TO OPERATION)
CN 1 (TO I/F PWB)
CN 17 TO VIDEO R/P
4 CONTROL
IC18
EX
V.PB/V.REC
D.FF
BLANKING SWITCHER
IC27 D/A CONVERTER
EX
5 SPEED CODE
IC29
D/A
IC28
REMOTE 2 (45 PIN) CN25 - ⑤
V. SPEED CTL (ANALOG)
6
5
4
3
2
1
A
B
C
E
F
G
H

4.8 REEL SERVO BLOCK DIAGRAM

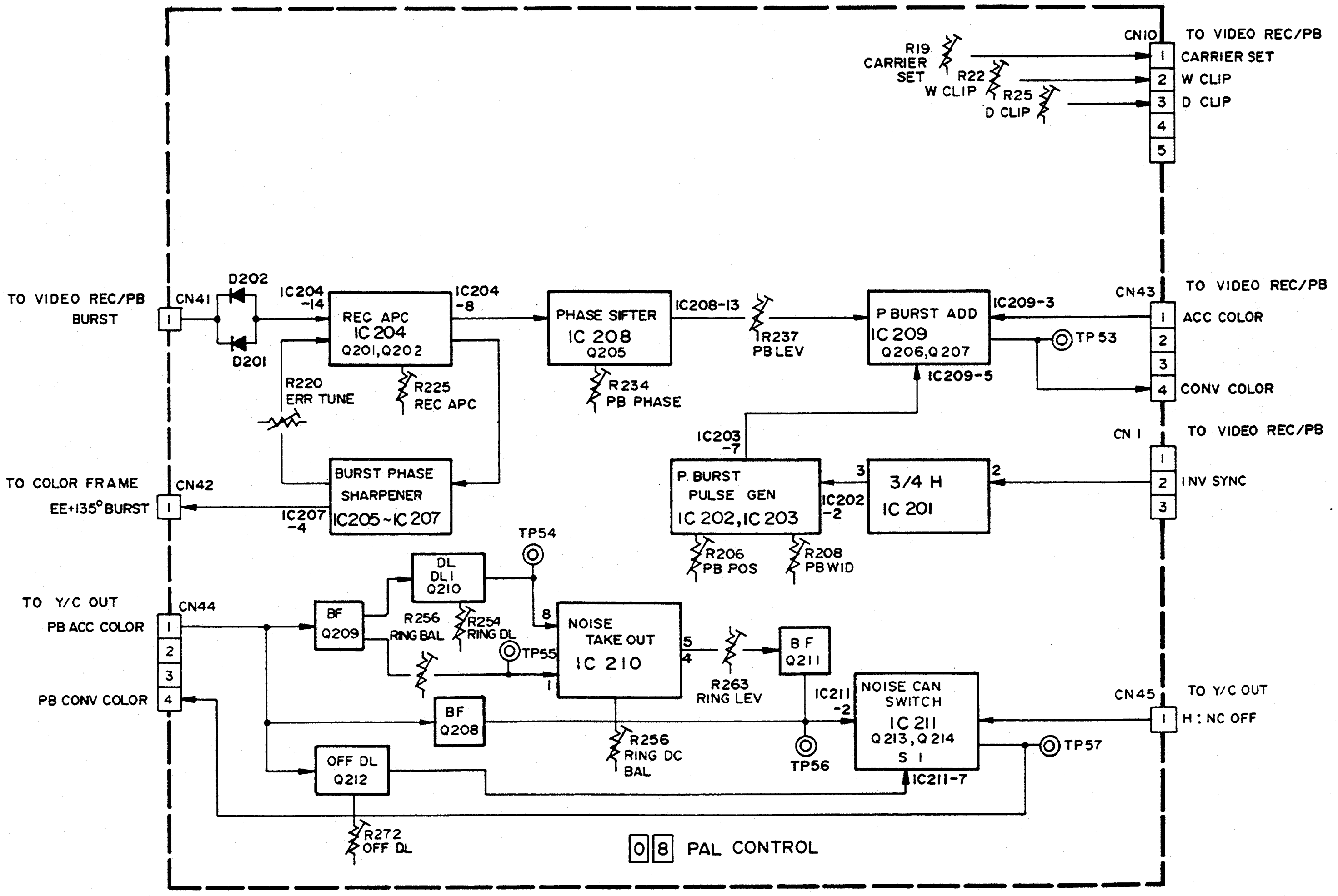


SUPPLY TENSION DETECTOR
CN5
TP1
TP4
IC 1
TUNING AMP
D1, D2
RECTI FIER
IC 1
VOLTAGE FOLLOWER
C8, C9, C10
R19, R145
LOOP FILTER
IC 2
IC 3
IC 9
R 36
SP DRAN TENSION
IC 3
VOLTAGE FOLLOWER
TP10
CN1
SUP DET LEVEL
SP TENSION ADJ
R15
R18
R26
R27
R28
R22
Q1
IC15
SKEW
IC 10
R33
R32
R35
R38
R29
R148
R30
R34
R37
R39
STORE
REW
DRAW
FF X15
REW X20
IC9
IC7
SP REV TENSION
R9
R129
R46
CN3
SKEW VR
R47
IC15
IC 14
R61
R62
R64
SKEW PRESET
SPTC
LOADING
TAPE BEGIN
Q19
R31
TAPE END
D12
FF
D11
TAPE EMERGENCY
12 V
TP20
R115
R116
CN6
TO SYSCON
Q11
Q12
30V
R114
① SKEW
② CAP REV
③ FF 20
④ REW 20
⑤ SPTC
⑥ TU TC
⑦ LOAD
⑧ STILL
⑨ FF
⑩ REW
⑪ DRAW
⑫ STORE
⑬ TAPE EMERGENCY
⑭ NO TC
⑮ TAPE BEGIN
⑯ TAPE END
STROBE
SERIAL CODE
CLOCK
FROM SYSCON
5V-12V AMP
Q17, 18
Q13, 14
Q15, 16
IC 13
IC 12
IC 11
IC17
R139
R140
R141
SP MDA ADJ
R142
R143
R144
SP FF BACK TENSION
TP21
TP22
TP29
TP30
TP31
TP25
TP26
CN 7
NO. T.C.
IC 15
IC17
R133
R134
R135
T.U. MDA ADJ
R136
R137
R138
TUREW BACK TENSION
TP23
TP24
D3
D4
Q5
CAP REV
STILL
Q6
D10
Q4
CN5
CN4
3.5 KHZ OSC
R76
T.U. REV TENSION
LOADING
IC 7
IC15
TU TC
Q10
TAPE END
LOOP FILTER
C36, C37, C38
R87, R88
IC 4
TUNING AMP
IC 4
RECTI-FIER
D5, D6
VOLTAGE FOLLOWER
IC 5
IC 7
TP3
TP5
R68
TAKE UP TENSION DETECTOR
T.U. DET LEVEL
R82
T.U. TENSION ADJ
R97
R98
IC 8
R99
R100
R101
R102
R103
R104
IC17
R90
IC 5
VOLTAGE FOLLOWER
2 1 REEL SERVO
Q1
EF
IC4
AST MULTIV
Q6
EF
IC 1
TP 6
30V
R16
SW/DRIVE
Q2
R15
D1, L7, C11
RECTI FIER
TP 9
CN2
M
SP REEL MOTOR
R29
R31
IC 3
Q5
Q3
Q4
FF X15
R32
R28
R26
R25
R19
R18
IC5
R30
R27
TP19
IC 2
R34
R35
C20
R9
R10
R11
TP 10
R17
1Ω/10W
TP7
IC 3
CN4
IC 6
TP12
R54
SW/DRIVE
Q7
R53
D2, L8, C33
RECTI FIER
TP15
CN3
TU REEL MOTOR
R65
R67
IC 8
Q10
Q8
Q9
REW X20
R68
R64
R62
R61
R58
R57
IC9
R66
R63
TP24
IC7
R70
R71
C36
R47
R48
R50
TP16
TP13
R55
1Ω/10W
IC 8
2 2 REEL MDA
A
B
C
4-8
4-8
E
F
G
H
6
5
4
3
2
1

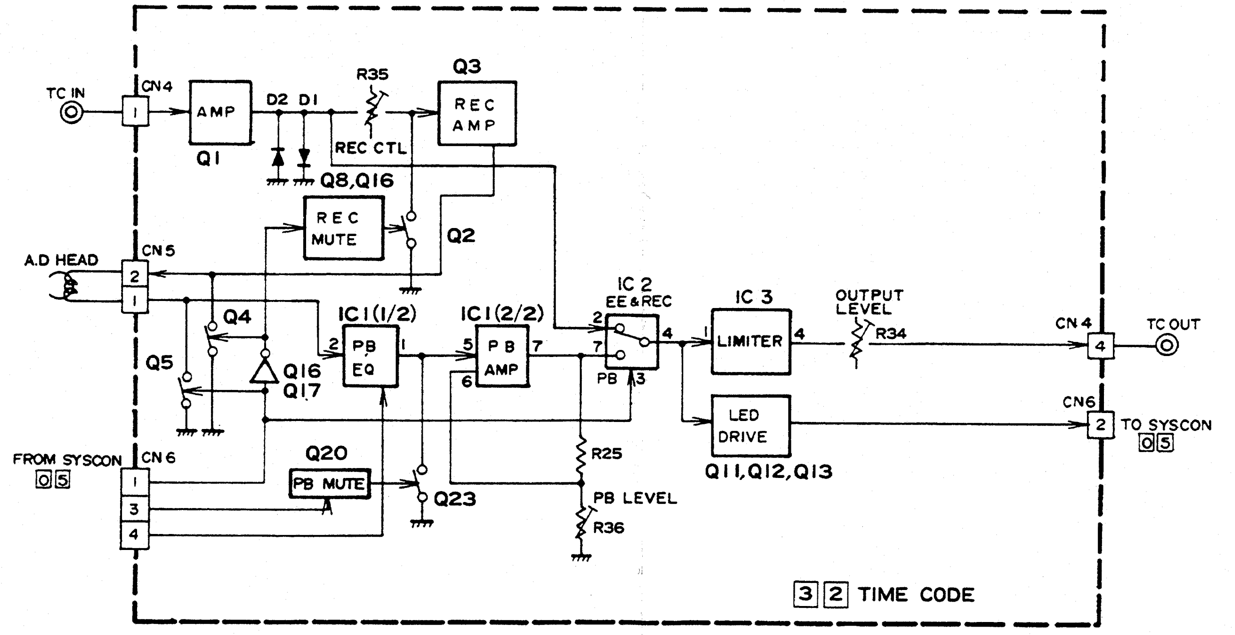
4.9 INTERFACE, TIME CODE AND PAL CONTROL BLOCK DIAGRAMS


PRESET DATA (TO COUNTER)
Z-80 CPU
8255
DIPSW
SERI-PARA (SHIFT REGISTER)
DATA BUS
ADDRRSS BUS
TALLY
TIME DATA
RAM (4016)
MEMORY SELECTOR
Z-80 SIO
ROM (2764)
I/O SELECTOR
CMD
PARA-SERI (SHIFT REGISTER)
28 INTER FACE
CN1
RECEIVE DATA
TRANS DATA
9P CON.
CN2 (40P)
TO 05-CN1 SYSCON
1 GND
2 GND
3 GND
4 GND
5 SENSE DATA
6 PRESET DATA
7 SERIAL CLOCK
8 TRANS CMD
9 CODE CMD 0
10 CODE CMD 1
11 CODE CMD 2
12 CODE CMD 3
13 CODE CMD 4
14 CODE CMD 5
15 CODE CMD 6
16 CODE CMD 7
17 CMD CLOCK
18 GND
19 CMD P/S
20 GND
21 SIO
22 GND
23 NC
24 S.O.2
25 OUT START
26 OUT STROBE
27 NC
28 NC
29 COND CLOCK
30 CONDITION 1
31 COND P/S
32 CONDITION 2
33 REMOTE 1
34 NC
35 RESET
36 CAP FG
37 5V
38 5V
39 5V
40 5V

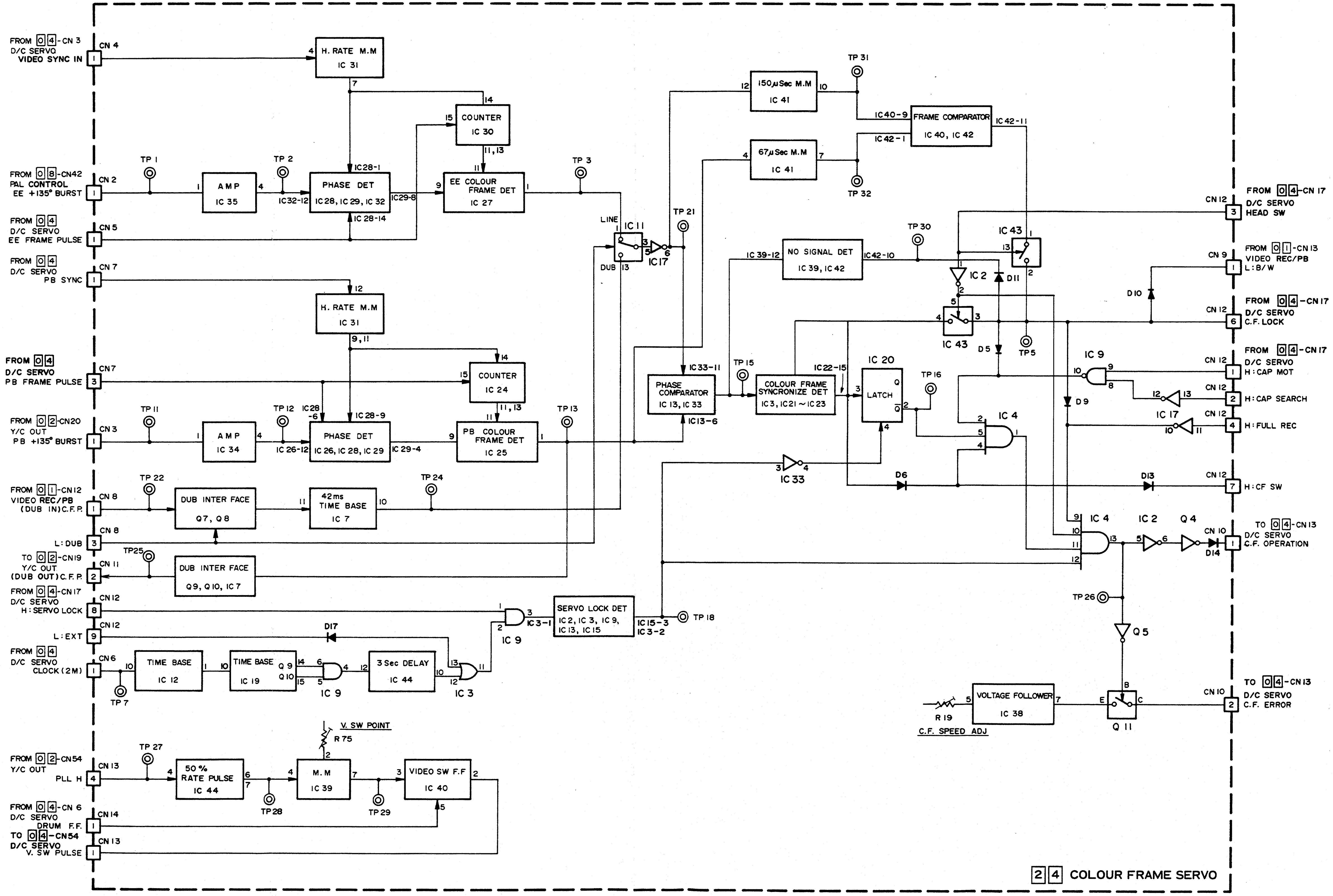
– PAL CONTROL –


CN10
TO VIDEO REC/PB
R19 CARRIER SET
R22 W CLIP
R25 D CLIP
1 CARRIER SET
2 W CLIP
3 D CLIP
TO VIDEO REC/PB BURST
CN41
D202
D201
IC204-14
IC204-8
REC APC IC204 Q201,Q202
R220 ERR TUNE
R225 REC APC
PHASE SIFTER IC208 Q205
R234 PB PHASE
IC208-13
R237 PBLEV
P BURST ADD IC209 Q206,Q207
IC209-3
IC209-5
TP53
CN43
TO VIDEO REC/PB
1 ACC COLOR
4 CONV COLOR
TO COLOR FRAME EE+135° BURST
CN42
BURST PHASE SHARPENER IC205~IC207
IC207-4
IC203-7
P. BURST PULSE GEN IC202, IC203
IC202-2
3/4 H IC201
R206 PB POS
R208 PB WID
CN1
TO VIDEO REC/PB
2 INV SYNC
TP54
TO Y/C OUT PB ACC COLOR
PB CONV COLOR
CN44
BF Q209
DL DL1 Q210
R256 RING BAL
R254 RING DL
TP55
NOISE TAKE OUT IC210
R263 RING LEV
BF Q211
BF Q208
R256 RING DC BAL
TP56
IC211-2
NOISE CAN SWITCH IC211 Q213, Q214 S1
IC211-7
TP57
CN45
TO Y/C OUT
H: NC OFF
OFF DL Q212
R272 OFF DL
08 PAL CONTROL

– TIME CODE –

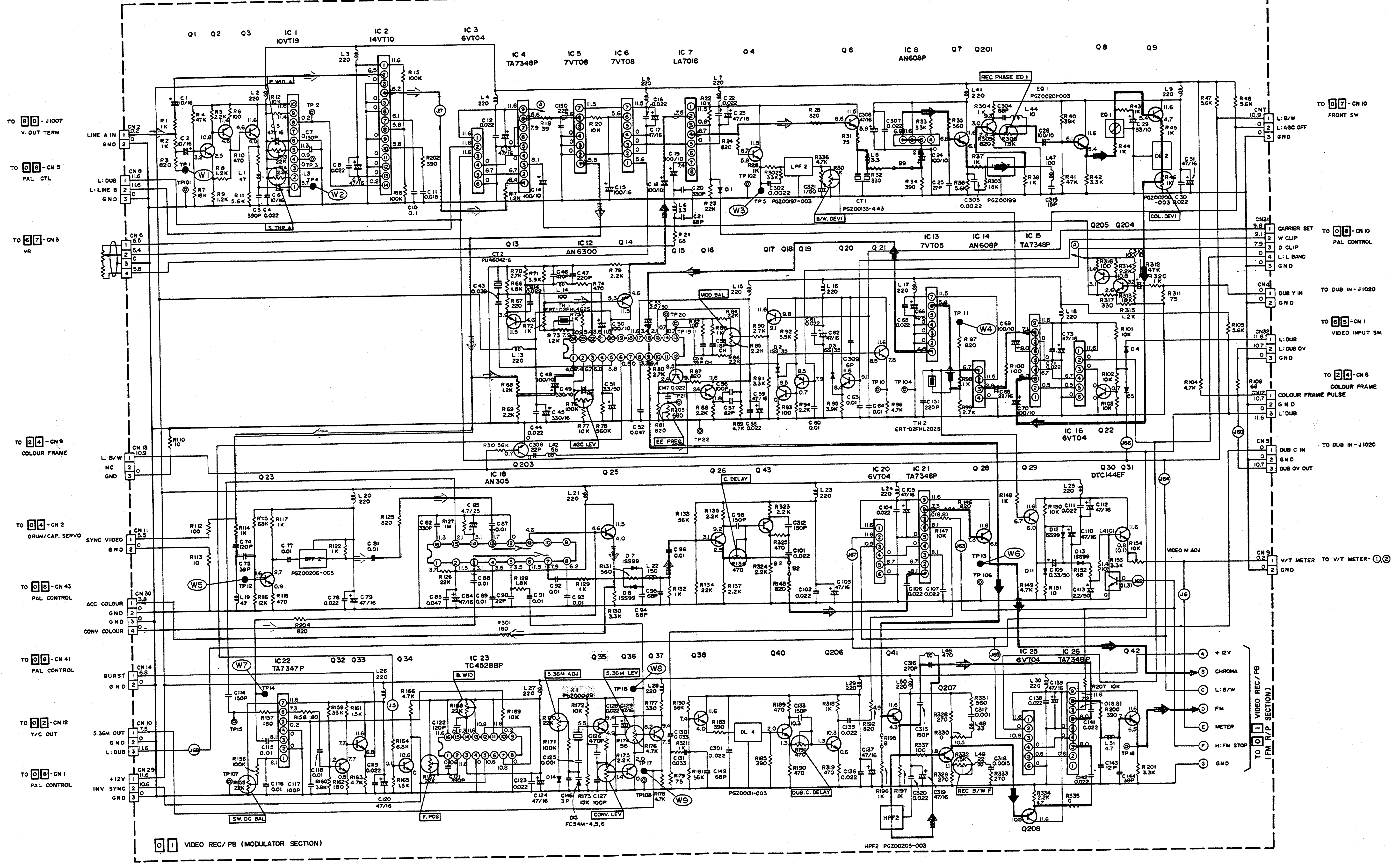

TC IN
CN4
AMP Q1
D2 D1
R35
REC CTL
Q3 REC AMP
Q8,Q16
REC MUTE
Q2
A.D HEAD
CN5
Q4
Q5
Q16 Q17
IC1(1/2) PB EQ
IC1(2/2) PB AMP
IC2 EE&REC
PB
IC3 LIMITER
OUTPUT LEVEL R34
CN4
TC OUT
LED DRIVE Q11,Q12,Q13
CN6
TO SYSCON 05
FROM SYSCON 05
CN6
Q20 PB MUTE
Q23
R25
PB LEVEL
R36
32 TIME CODE

4.10 COLOUR FRAME SERVO BLOCK


FROM 04-CN 3 D/C SERVO VIDEO SYNC IN
CN 4
H. RATE M.M IC 31
COUNTER IC 30
FROM 08-CN42 PAL CONTROL EE +135° BURST
CN 2
TP 1
AMP IC 35
TP 2
IC32-12
PHASE DET IC 28, IC 29, IC 32
IC28-1
IC 28-14
IC29-8
EE COLOUR FRAME DET IC 27
TP 3
FROM 04 D/C SERVO EE FRAME PULSE
CN 5
FROM 04 D/C SERVO PB SYNC
CN 7
H. RATE M.M IC 31
FROM 04 D/C SERVO PB FRAME PULSE
CN7
COUNTER IC 24
FROM 02-CN20 Y/C OUT PB +135° BURST
CN 3
TP 11
AMP IC 34
TP 12
IC28-6
IC28-9
IC 26-12
PHASE DET IC 26, IC 28, IC 29
IC 29-4
PB COLOUR FRAME DET IC 25
TP 13
FROM 01-CN12 VIDEO REC/PB (DUB IN)C.F.P.
CN 8
TP 22
DUB INTER FACE Q7, Q8
42ms TIME BASE IC 7
TP 24
L: DUB
CN 8
TP25
TO 02-CN19 Y/C OUT (DUB OUT)C.F.P.
CN 11
DUB INTER FACE Q9, Q10, IC7
FROM 04-CN17 D/C SERVO H: SERVO LOCK
CN12
L: EXT
CN12
D17
FROM 04 D/C SERVO CLOCK (2M)
CN6
TP 7
TIME BASE IC 12
TIME BASE IC 19
Q 9
Q 10
IC 9
3 Sec DELAY IC 44
IC 3
IC 9
IC3-1
SERVO LOCK DET IC2, IC 3, IC 9, IC 13, IC 15
IC15-3
IC3-2
TP 18
LINE
IC 11
DUB
IC17
TP 21
150μSec M.M IC 41
TP 31
67μSec M.M IC 41
TP 32
IC40-9
IC42-1
FRAME COMPARATOR IC 40, IC 42
IC 42-11
IC 39-12
NO SIGNAL DET IC 39, IC 42
IC42-10
TP 30
IC 43
IC 2
D11
IC 43
D5
TP5
IC33-11
PHASE COMPARATOR IC 13, IC 33
IC13-6
TP 15
COLOUR FRAME SYNCRONIZE DET IC3, IC21 ~ IC23
IC22-15
IC 20
LATCH
TP 16
IC 4
IC 33
D6
D13
IC 9
D9
IC 17
D10
FROM 04-CN 17 D/C SERVO HEAD SW
CN 12
FROM 01-CN13 VIDEO REC/PB L: B/W
CN 9
FROM 04-CN17 D/C SERVO C.F. LOCK
CN 12
FROM 04-CN17 D/C SERVO H: CAP MOT
CN 12
H: CAP SEARCH
CN 12
H: FULL REC
CN 12
H: CF SW
CN 12
IC 4
IC 2
Q 4
D14
TO 04-CN13 D/C SERVO C.F. OPERATION
CN 10
TP 26
Q5
R 19
C.F. SPEED ADJ
VOLTAGE FOLLOWER IC 38
Q 11
TO 04-CN13 D/C SERVO C.F. ERROR
CN 10
V. SW POINT
R 75
FROM 02-CN54 Y/C OUT PLL H
CN 13
TP 27
50 % RATE PULSE IC 44
TP28
M. M IC 39
TP29
VIDEO SW F.F IC 40
FROM 04-CN 6 D/C SERVO DRUM F.F.
CN 14
TO 04-CN54 D/C SERVO V. SW PULSE
CN 13
24 COLOUR FRAME SERVO

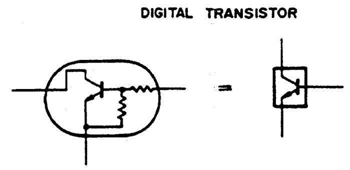
4.11 VIDEO REC/PB, HPF SCHEMATIC DIAGRAMS

– MODULATOR SECTION –

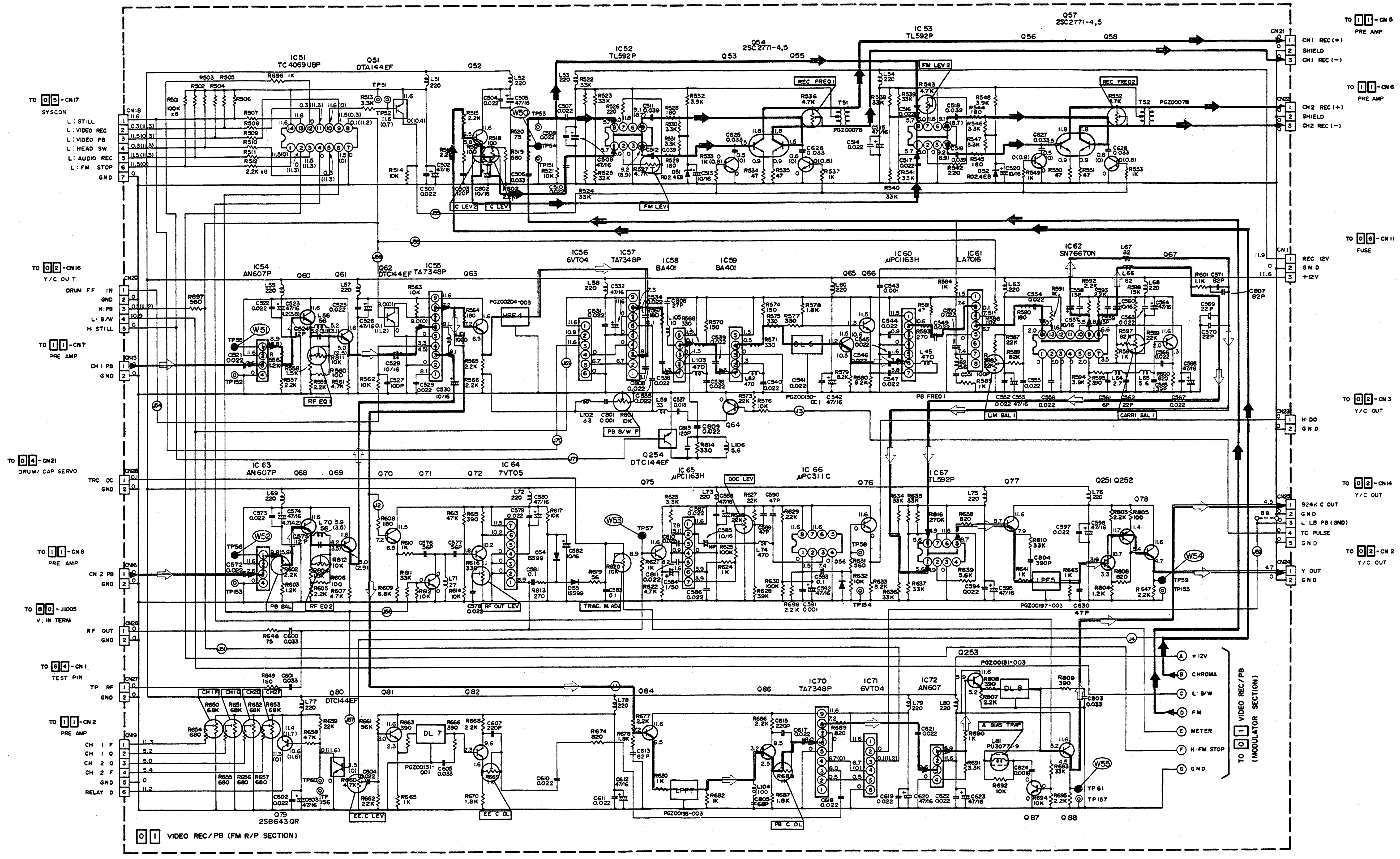

TO 8 0 - J1007 V. OUT TERM
LINE A IN
GND
CN 2
TO 0 8 - CN 5 PAL CTL
CN 8
L: DUB
L: LINE B
GND
TO 6 7 - CN 3 VR
CN 6
TO 2 4 - CN 9 COLOUR FRAME
CN 13
L: B/W
NC
GND
TO 0 4 - CN 2 DRUM/CAP. SERVO
CN 11
SYNC VIDEO
GND
TO 0 8 - CN 43 PAL CONTROL
CN 30
ACC COLOUR
GND
GND
CONV COLOUR
TO 0 8 - CN 41 PAL CONTROL
CN 14
BURST
GND
TO 0 2 - CN 12 Y/C OUT
CN 10
5.36M OUT
GND
L: DUB
TO 0 8 - CN 1 PAL CONTROL
CN 29
+12V
INV SYNC
GND
0 1 VIDEO REC/ PB (MODULATOR SECTION)
IC 1 10VT19
IC 2 14VT10
IC 3 6VT04
IC 4 TA7348P
IC 5 7VT08
IC 6 7VT08
IC 7 LA7016
IC 8 AN608P
IC 12 AN6300
IC 13 7VT05
IC 14 AN608P
IC 15 TA7348P
IC 16 6VT04
IC 18 AN305
IC 20 6VT04
IC 21 TA7348P
IC 22 TA7347P
IC 23 TC4528BP
IC 25 6VT04
IC 26 TA7348P
P. WID A
S. THR. A
REC PHASE EQ I
B/W. DEVI
COL. DEVI
MOD BAL
AGC LEV
EE FREQ
C. DELAY
B. WID
5.36M ADJ
5.36M LEV
SW. DC BAL
F. POS
CONV. LEV
DUB. C. DELAY
REC B/W F
HPF2 PGZ00205-003
CN7
L: B/W
L: AGC OFF
GND
TO 0 7 - CN 10 FRONT SW
CN31
CARRIER SET
W CLIP
D CLIP
L: L BAND
GND
TO 0 8 - CN 10 PAL CONTROL
CN4
DUB Y IN
GND
TO DUB IN - J1020
TO 6 5 - CN 1 VIDEO INPUT SW.
CN32
L: DUB
L: DUB OV
GND
TO 2 4 - CN 8 COLOUR FRAME
CN12
COLOUR FRAME PULSE
GND
L: DUB
CN 5
DUB C IN
GND
DUB OV OUT
TO DUB IN - J1020
VIDEO M ADJ
CN 9
V/T METER
GND
TO V/T METER- ①,②
Ⓐ +12V
Ⓑ CHROMA
Ⓒ L: B/W
Ⓓ FM
Ⓔ METER
Ⓕ H: FM STOP
Ⓖ GND
TO 0 1 VIDEO REC/PB (FM R/P SECTION)

NOTES: Unless otherwise specified;

1. All resistance values are in ohms. (1/6W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.
6. Shaded (▨) parts are critical for safety. Replace only with specified part numbers.
7. NPN type transistors are 2SC2647C.
8. PNP type transistors are 2SB641Q,R.
9. All diodes are 1SS133.


DIGITAL TRANSISTOR
=

— FM R/P SECTION —

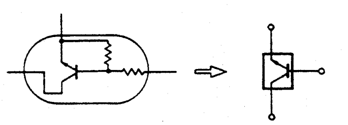

TO 05-CN17 SYSCON
CN18
L: STILL
L: VIDEO REC
L: VIDEO PB
L: HEAD SW
L: AUDIO REC
L: FM STOP
GND
TO 02-CN16 Y/C OUT
CN20
DRUM FF IN
GND
H: PB
L: B/W
H: STILL
TO 11-CN7 PRE AMP
CN15
CH 1 PB
GND
TO 04-CN21 DRUM/CAP SERVO
CN28
TRC DC
GND
TO 11-CN8 PRE AMP
CN16
CH 2 PB
GND
TO 80-J1005 V. IN TERM
CN26
RF OUT
GND
TO 64-CN1 TEST PIN
CN27
TP RF
GND
TO 11-CN2 PRE AMP
CN19
CH 1 F
CH 1 O
CH 2 O
CH 2 F
GND
RELAY D
TO 11-CN5 PRE AMP
CN21
CH1 REC (+)
SHIELD
CH1 REC (−)
TO 11-CN6 PRE AMP
CN22
CH2 REC (+)
SHIELD
CH2 REC (−)
TO 06-CN11 FUSE
CN1
REC 12V
GND
+12V
TO 02-CN3 Y/C OUT
CN23
H: DO
GND
TO 02-CN14 Y/C OUT
CN25
924K C OUT
GND
L: LB PB (GND)
TC PULSE
GND
TO 02-CN2 Y/C OUT
CN24
Y OUT
GND
TO 01 VIDEO REC/PB (MODULATOR SECTION)
A +12V
B CHROMA
C L: B/W
D FM
E METER
F H: FM STOP
G GND
IC51 TC4069UBP
Q51 DTA144EF
Q52
IC52 TL592P
Q53
Q54 2SC2771-4,5
Q55
IC53 TL592P
Q56
Q57 2SC2771-4,5
Q58
IC54 AN607P
Q60
Q61
Q62 DTC144EF
IC55 TA7348P
Q63
IC56 6VT04
IC57 TA7348P
IC58 BA401
IC59 BA401
Q65 Q66
IC60 μPC1163H
IC61 LA7016
IC62 SN76670N
Q67
Q64
Q254 DTC144EF
IC63 AN607P
Q68
Q69
Q70
Q71
Q72
IC64 7VT05
Q75
IC65 μPC1163H
IC66 μPC311C
Q76
IC67 TL592P
Q77
Q251 Q252
Q78
Q253
PGZ00131-003
Q80 DTC144EF
Q81
Q82
Q84
Q86
IC70 TA7348P
IC71 6VT04
IC72 AN607
Q79 2SB643QR
Q87
Q88
L81 PU3077-9
DL 5
DL 7
DL 8
LPF 5
LPF 7
HPF 4
PGZ0007B
PGZ00204-003
PGZ00130-001
PGZ00197-003
PGZ00198-003
PGZ00131-001
REC FREQ1
FM LEV 2
REC FREQ2
C LEV 2
C LEV 1
FM LEV
RF EQ1
PB B/W F
PB FREQ1
LIM BAL 1
CARRI BAL 1
DOC LEV
PB BAL
RF EQ2
RF OUT LEV
TRAC. M. ADJ
CH1F
CH1Q
CH2Q
CH2F
EE C LEV
EE C DL
PB C DL
A BIAS TRAP
W50
W51
W52
W53
W54
W55
01 VIDEO REC/PB (FM R/P SECTION)

➡ RECORDING SIGNAL PATH
⇨ PLAYBACK SIGNAL PATH
➡ REC/PLAY SIGNAL PATH

NOTES: Unless otherwise specified;

1. All resistance values are in ohms. (1/6W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.
6. Shaded ( ) parts are critical for safety. Replace only with specified part numbers.
7. NPN type transistors are 2SC2647C.
8. PNP type transistors are 2SB641Q,R.
9. All diodes are 1SS133.

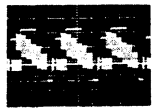
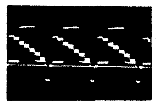
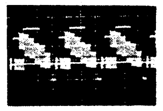
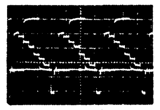
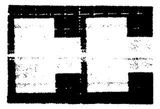
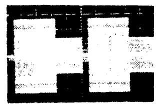
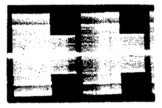
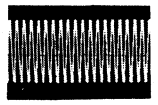
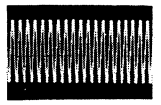
DIGITAL TRANSISTOR



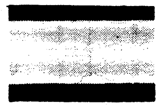
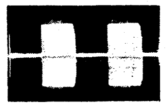
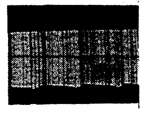
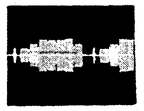
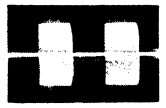
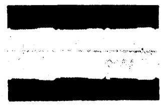
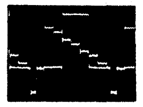
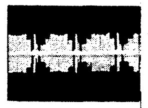
4.12 VIDEO REC/PB, HPF & VIDEO INPUT SW CIRCUIT BOARDS

– MAIN WAVEFORMS OF VIDEO REC/PB CIRCUIT –

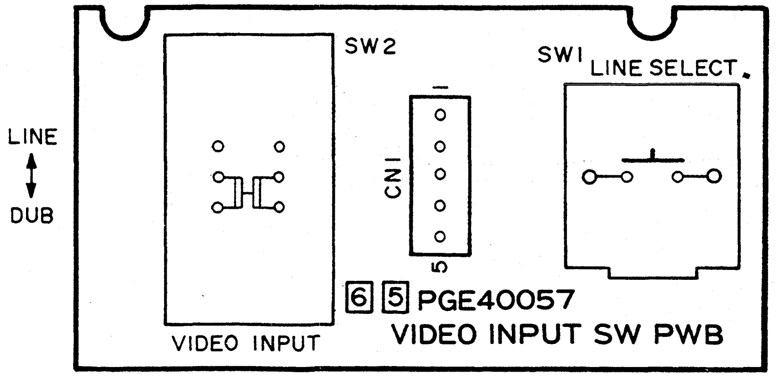
(MODULATOR SECTION)

W1  TP1 0.94 Vp-p	**W2**  TP4 1.7 Vp-p	**W3**  TP5 0.36 Vp-p
W4  TP11 1.1 Vp-p	**W5**  TP12 240 mVp-p	**W6**  TP13 370 mVp-p (REC)
W7  TP14 0.52 Vp-p	**W8**  TP16 1.1 Vp-p 5.36 MHz	**W9**  TP17 0.2 Vp-p 5.36 MHz

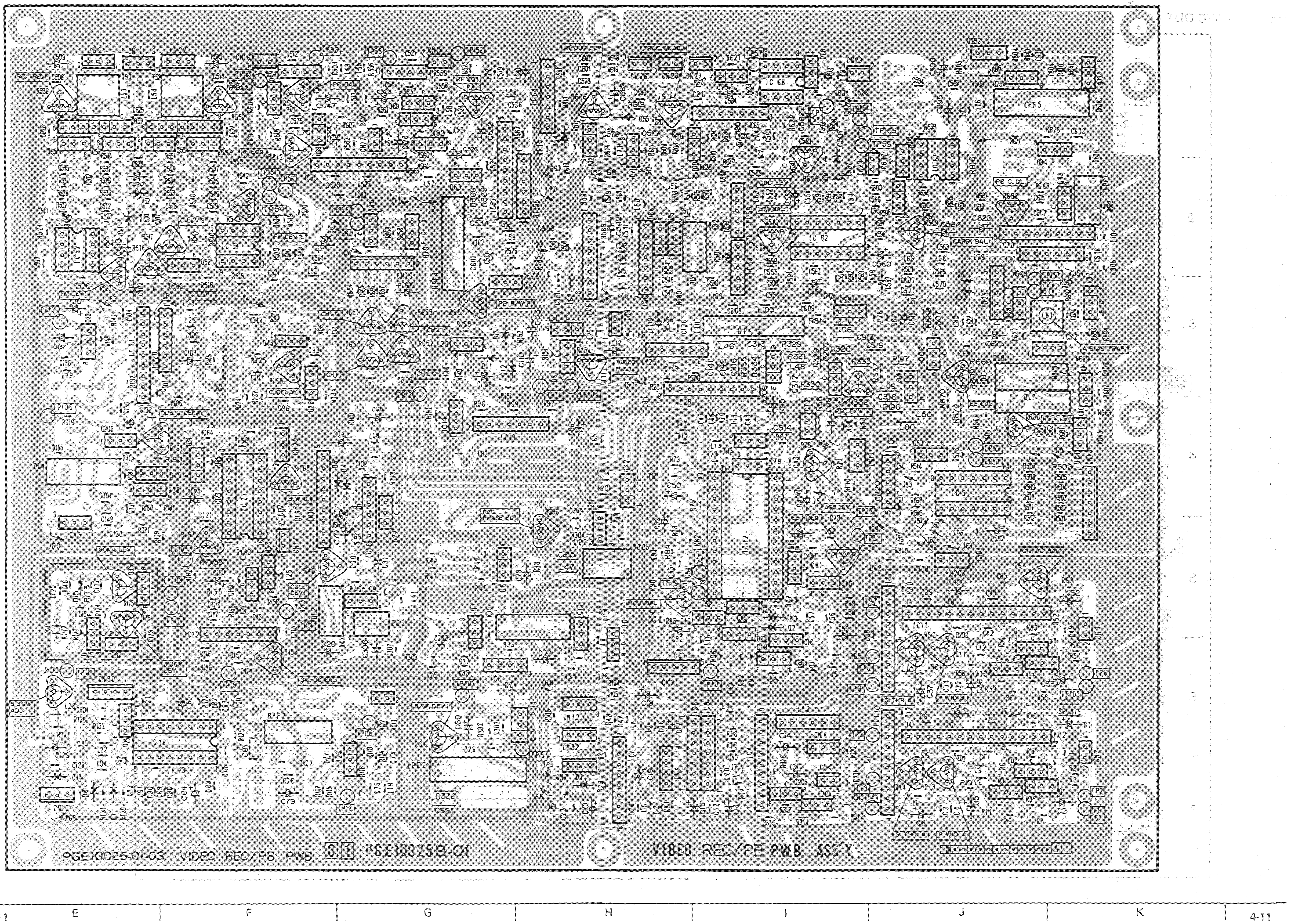
(FM R/P SECTION)

W50  TP54 270 mVp-p (REC)	**W51**  TP55 1 Vp-p (PB)	**W51**  TP55 9.2 Vp-p (REC)
W52  TP56 8.7 Vp-p (REC)	**W52**  TP56 1 Vp-p (PB)	**W53**  TP57 1 Vp-p (PB)
W54  TP59 1.2 Vp-p	**W55**  TP61 0.15 Vp-p	

– VIDEO INPUT SW –

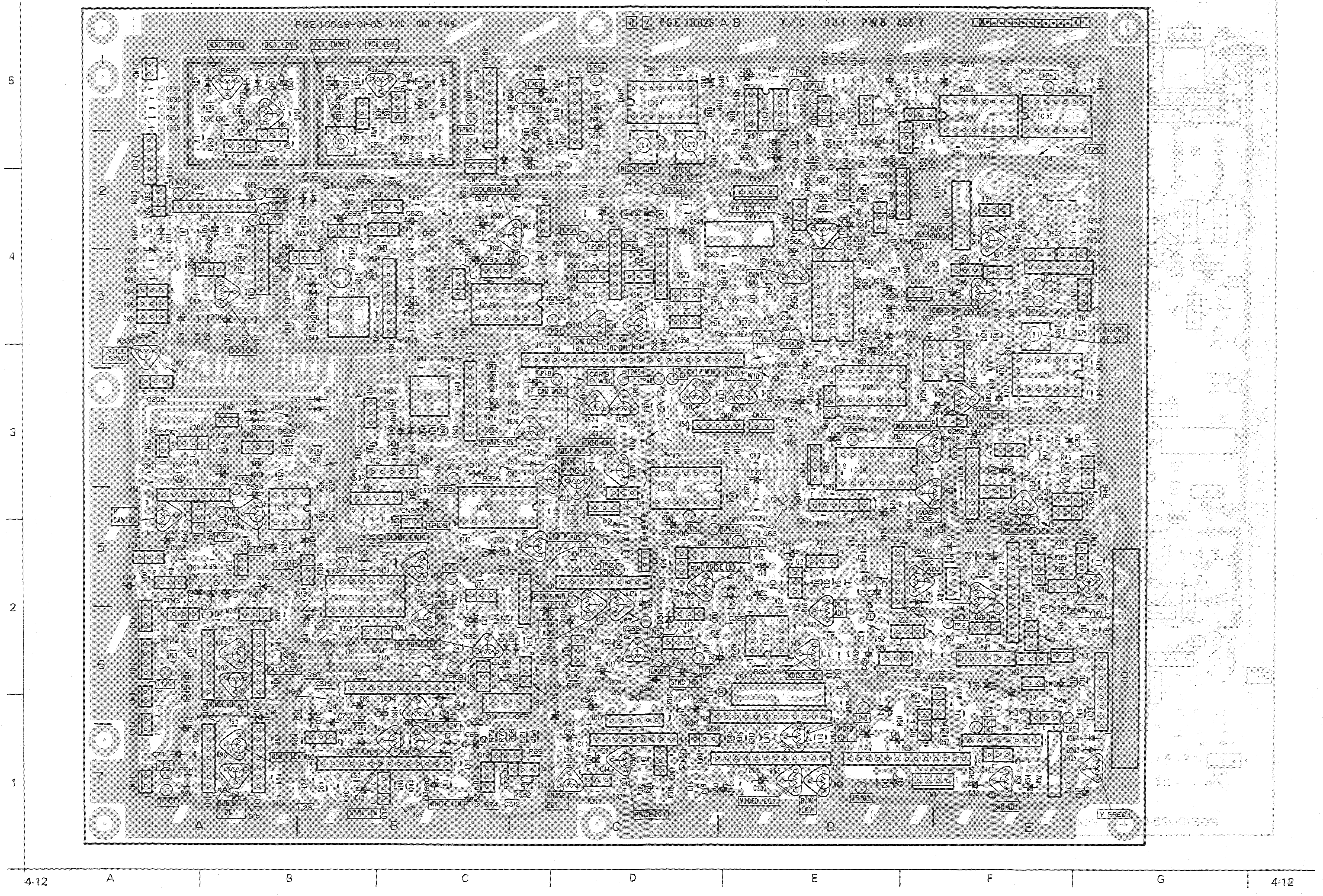

SW2
SW1
LINE SELECT
LINE
DUB
CN1
1
5
VIDEO INPUT
6 5 PGE40057
VIDEO INPUT SW PWB

VIDEO REC/PB –


REC FREQ1
REC FREQ2
PB BAL
RF EQ1
RF EQ2
RF OUT LEV
TRAC. M. ADJ
IC 66
LPF5
FM LEV1
FM LEV2
C LEV1
C LEV2
IC 52
IC 53
HPF4
PB B/W F
DOC LEV
LIM BAL1
IC 62
PB C. DL
CARRI BAL
CH1 Q
CH2 F
CH1 F
CH2 Q
C.DELAY
DUB. C. DELAY
VIDEO M.ADJ
HPF 2
A BIAS TRAP
IC 26
REC B/W F
EE COL
EE C LEV
IC 13
IC 23
B. WID
IC 12
AGC LEV
EE FREQ
IC 51
REC PHASE EQ
CONV. LEV
F. POS
COL DEVI
CH. DC BAL
MOD BAL
5.36M LEV
5.36M ADJ
SW. DC BAL
B/W. DEVI
IC 18
BPF 2
LPF 2
S.THR. B
P WID B
SPLATE
S. THR. A
P. WID. A
PGE10025-01-03 VIDEO REC/PB PWB
01 PGE10025B-01
VIDEO REC/PB PWB ASS'Y
4-11
E
F
G
H
I
J
K
4-11

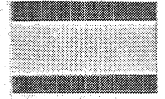
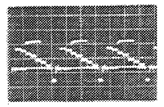
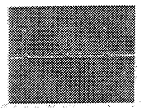
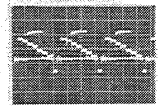
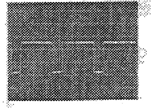
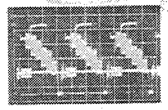
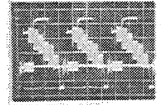
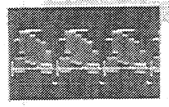
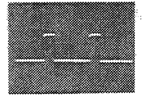
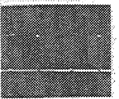
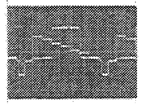
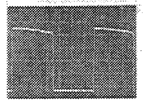
4.13 Y/C OUT, APC & CODE SW CIRCUIT BOARDS

– Y/C OUT –

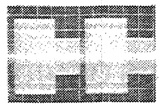
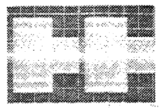
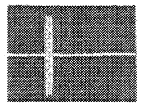
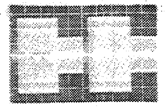
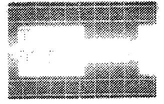
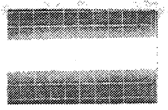
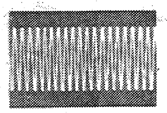
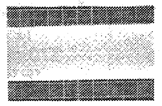
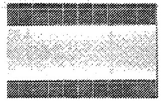
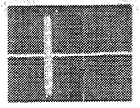
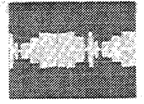
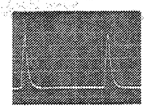
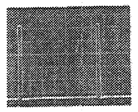

PGE 10026-01-05 Y/C OUT PWB
0 2 PGE 10026 A B Y/C OUT PWB ASS'Y
OSC FREQ
OSC LEV
VCO TUNE
VCO LEV
COLOUR LOCK
DISCRI TUNE
DISCRI OFF SET
PB COL.LEV
CONV BAL
DUB C OUT DL
DUB C OUT LEV
H DISCRI OFF SET
STILL SYNC
SC LEV
SW DC BAL 2
SW DC BAL 1
CARIB P WID
P CAN WID
CH1 P WID
CH2 P WID
MASK WID
H DISCRI GAIN
P GATE POS
FREQ ADJ
ADD P WID
GATE P POS
P CAN DC
CLEV
CLAMP P WID
ADD P POS
MASK POS
DC COMPE
GATE P WID
NOISE LEV
P GATE WID
3/4H ADJ
RF NOISE LEV
OUT LEV
VIDEO OUT DC
DUB Y LEV
DUB OUT DC
SYNC LIN
WHITE LIN
ADD P LEV
PHASE EQ2
PHASE EQ1
VIDEO EQ2
B/W LEV
VIDEO EQ1
NOISE BAL
SYNC THR
DL ADJ
DC ADJ
8M LEV
SIN ADJ
ADM Y LEV
Y FREQ
A
B
C
D
E
F
G
1
2
3
4
5
6
7
4-12

– MAIN WAVEFORMS OF Y/C OUT CIRCUIT –

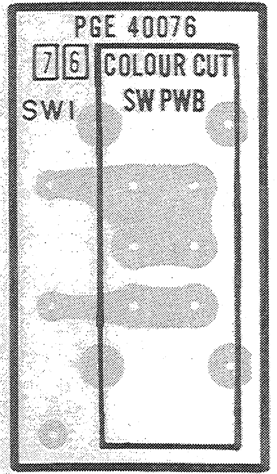
(Y PROCESS SECTION)

W1  TP1 200 mVp-p	**W2**  TP16 1.2 Vp-p	**W3**  TP12 10.7 Vp-p
W4  TP6 1.2 Vp-p	**W5**  TP14 12 Vp-p	**W6**  TP8 2.2 Vp-p
W7  TP9 1.1 Vp-p	**W8**  TP10 1 Vp-p	**W9**  TP11 10 Vp-p
W10  TP5 11.4 Vp-p	**W11**  TP13 740 mVp-p	**W12**  TP15 4.85 Vp-p

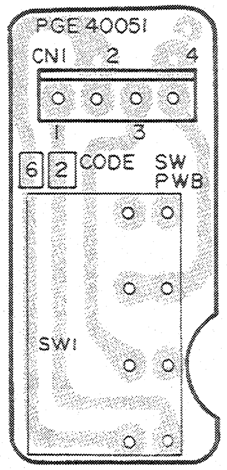
(COLOR PROCESS SECTION)

W51  TP51 1 Vp-p (PB)	**W52**  TP74 150 mVp-p	**W53**  TP56 145 mVp-p (PB)
W54  TP54 0.55 Vp-p	**W55**  TP55 1.8 Vp-p	**W56**  TP59 145 mVp-p
W57  TP65 190 mVp-p	**W58**  TP71 1.7 Vp-p 4.43 MHz	**W59**  TP73 1.5 Vp-p 4.43 MHz
W60  TP57 310 mVp-p	**W61**  TP58 550 mVp-p	**W62**  TP70 8.3 Vp-p
W63  TP68 11.3 Vp-p		

– COLOUR CUT SW –

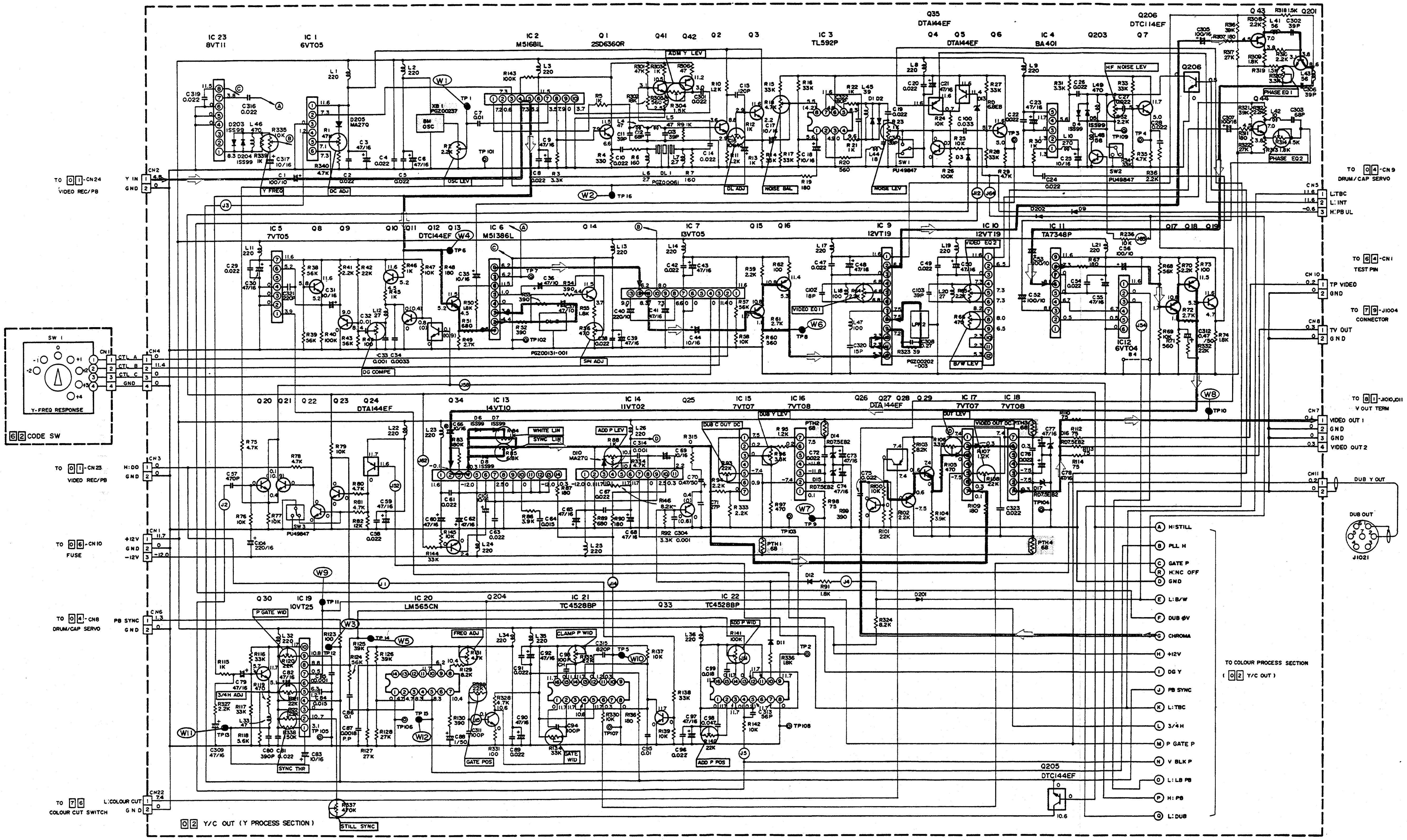

PGE 40076
7
6
COLOUR CUT
SW PWB
SW1

– CODE SW –


PGE 40051
CN1
2
4
1
3
6
2
CODE SW PWB
SW1

4.14 Y/C OUT SCHEMATIC DIAGRAM

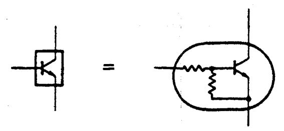
– Y PROCESS SECTION –


IC 23 8VT11
IC 1 6VT05
IC 2 M51681L
Q1 2SD636QR
Q41
Q42
Q2
Q3
IC 3 TL592P
Q35 DTA144EF
Q4
Q5 DTA144EF
Q6
IC 4 BA401
Q203
Q206 DTC114EF
Q7
Q43
Q201
IC 5 7VT05
Q8
Q9
Q10
Q11
Q12 DTC144EF
Q13
IC 6 M51386L
Q14
IC 7 13VT05
Q15
Q16
IC 9 12VT19
IC 10 12VT19
IC 11 TA7348P
IC12 6VT04
Q17
Q18
Q19
Q20
Q21
Q22
Q23
Q24 DTA144EF
Q34
IC 13 14VT10
IC 14 11VT02
Q25
IC 15 7VT07
IC 16 7VT08
Q26
Q27 DTA144EF
Q28
Q29
IC 17 7VT07
IC 18 7VT08
Q30
IC 19 10VT25
IC 20 LM565CN
Q204
IC 21 TC4528BP
Q33
IC 22 TC4528BP
Q205 DTC144EF
SW 1
Y-FREQ RESPONSE
62 CODE SW
TO 01-CN24 VIDEO REC/PB
Y IN
GND
CTL A
CTL B
CTL C
GND
TO 01-CN23 VIDEO REC/PB
H:DO
GND
TO 06-CN10 FUSE
+12V
GND
−12V
TO 04-CN8 DRUM/CAP SERVO
PB SYNC
GND
TO 76 COLOUR CUT SWITCH
L:COLOUR CUT
GND
02 Y/C OUT (Y PROCESS SECTION)
ADM Y LEV
HF NOISE LEV
PHASE EQ1
PHASE EQ2
Y FREQ
DC ADJ
OSC LEV
DL ADJ
NOISE BAL
NOISE LEV
DG COMPE
SN ADJ
VIDEO EQ1
VIDEO EQ2
B/W LEV
WHITE LIM
SYNC LIM
ADD P LEV
DUB C OUT DC
DUB Y LEV
OUT LEV
VIDEO OUT DC
P GATE WID
3/4H ADJ
SYNC THR
FREQ ADJ
CLAMP P WID
GATE POS
GATE WID
ADD P WID
ADD P POS
STILL SYNC
TO 04-CN9 DRUM/CAP SERVO
L:TBC
L:INT
H:PB UL
TO 64-CN1 TEST PIN
TP VIDEO
GND
TO 79-J1004 CONNECTOR
TV OUT
GND
TO 81-J1010,J1011 V OUT TERM
VIDEO OUT 1
GND
GND
VIDEO OUT 2
DUB Y OUT
DUB OUT
J1021
Ⓐ H:STILL
Ⓑ PLL H
Ⓒ GATE P
Ⓓ H:NC OFF
Ⓓ GND
Ⓔ L:B/W
Ⓕ DUB ØV
Ⓖ CHROMA
Ⓗ +12V
Ⓘ DG Y
Ⓙ PB SYNC
Ⓚ L:TBC
Ⓛ 3/4H
Ⓜ P GATE P
Ⓝ V BLK P
Ⓞ L:LB PB
Ⓟ H:PB
Ⓠ L:DUB
TO COLOUR PROCESS SECTION (02 Y/C OUT)

NOTES: Unless otherwise specified;

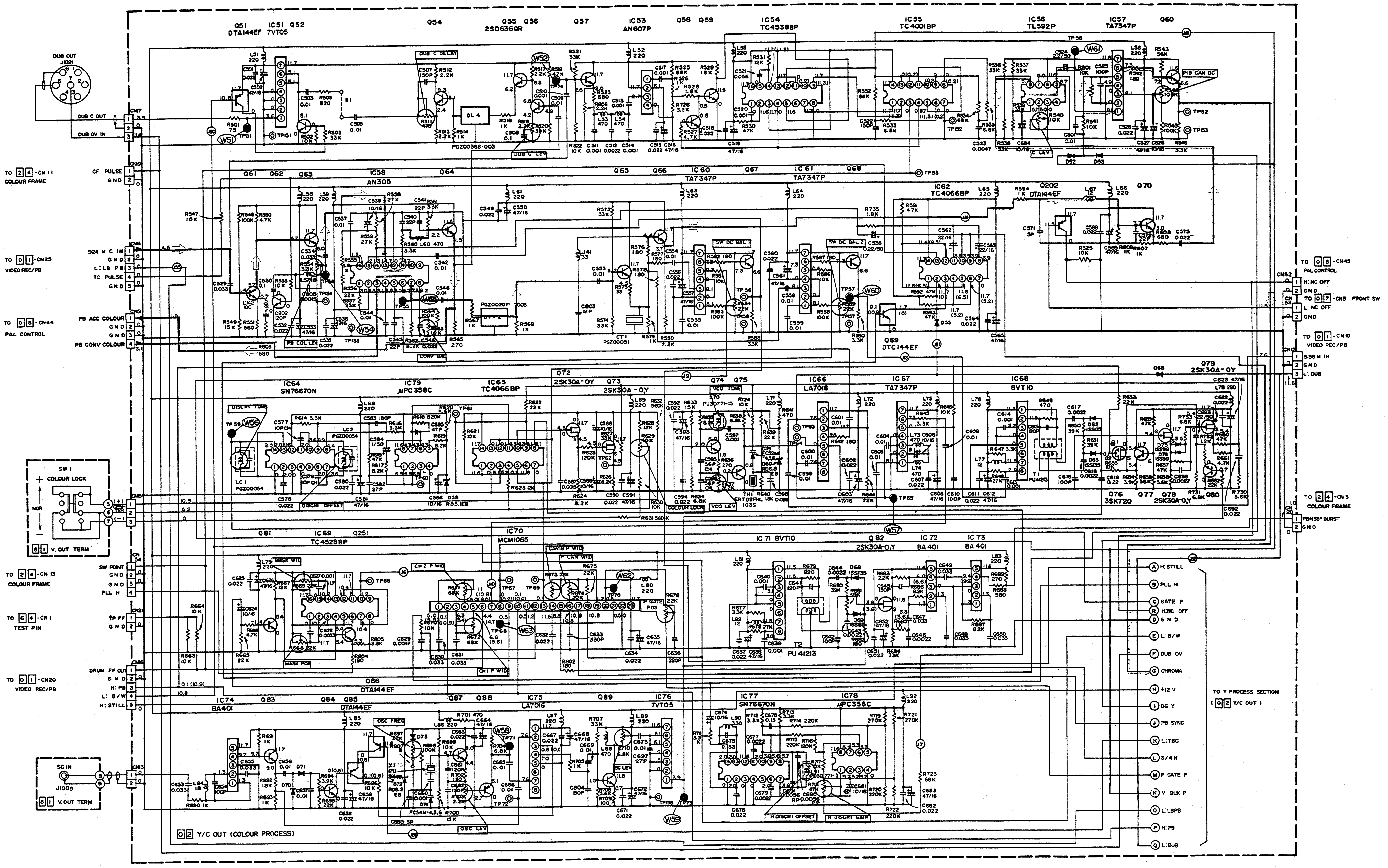
1. All resistance values are in ohms. (1/6W).
2. All inductance values are in µH.
3. All capacitance values are in µF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.
6. Shaded (▨) parts are critical for safety. Replace only with specified part numbers.
7. NPN type transistors are 2SC2647C.
8. PNP type transistors are 2SB641Q,R.
9. All diodes are 1SS133.

DIGITAL TRANSISTOR



➡ RECORDING SIGNAL PATH
⇨ PLAYBACK SIGNAL PATH
➡ REC/PLAY SIGNAL PATH

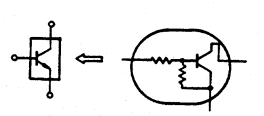
– COLOR PROCESS SECTION –


Q51 IC51 Q52
DTA144EF 7VT05
Q54
Q55 Q56
2SD636QR
Q57
IC53
AN607P
Q58 Q59
IC54
TC4538BP
IC55
TC4001BP
IC56
TL592P
IC57
TA7347P
Q60
DUB OUT J1021
DUB C OUT
DUB OV IN
Q61 Q62 Q63
IC58
AN305
Q64
Q65 Q66
IC60
TA7347P
Q67
IC61
TA7347P
Q68
IC62
TC4066BP
Q202
DTA144EF
Q70
TO 2 4 -CN 11 COLOUR FRAME
TO 0 1 -CN25 VIDEO REC/PB
TO 0 8 -CN44 PAL CONTROL
Q69
DTC144EF
TO 0 8 -CN45 PAL CONTROL
TO 0 7 -CN3 FRONT SW
TO 0 1 -CN10 VIDEO REC/PB
IC64
SN76670N
IC79
μPC358C
IC65
TC4066BP
Q72
2SK30A-OY
Q73
2SK30A-OY
Q74 Q75
IC66
LA7016
IC67
TA7347P
IC68
8VT10
Q79
2SK30A-OY
SW1
COLOUR LOCK
NOR
8 1 V. OUT TERM
Q76
3SK72Q
Q77 Q78
2SK30A-O,Y
Q80
TO 2 4 -CN3 COLOUR FRAME
Q81
IC69
TC4528BP
Q251
IC70
MCM1065
IC71 8VT10
Q82
2SK30A-O,Y
IC72
BA401
IC73
BA401
TO 2 4 -CN 13 COLOUR FRAME
TO 6 4 -CN1 TEST PIN
TO 0 1 -CN20 VIDEO REC/PB
Q86
DTA144EF
IC74
BA401
Q83
Q84 Q85
DTA144EF
Q87 Q88
IC75
LA7016
Q89
IC76
7VT05
IC77
SN76670N
IC78
μPC358C
SC IN J1009
8 1 V. OUT TERM
0 2 Y/C OUT (COLOUR PROCESS)
A H:STILL
B PLL H
C GATE P
R H:NC OFF
D GND
E L: B/W
F DUB OV
G CHROMA
H +12 V
I DC Y
J PB SYNC
K L:TBC
L 3/4H
M P GATE P
N V BLK P
O L:LBPB
P H:PB
Q L:DUB
TO Y PROCESS SECTION (0 2 Y/C OUT)

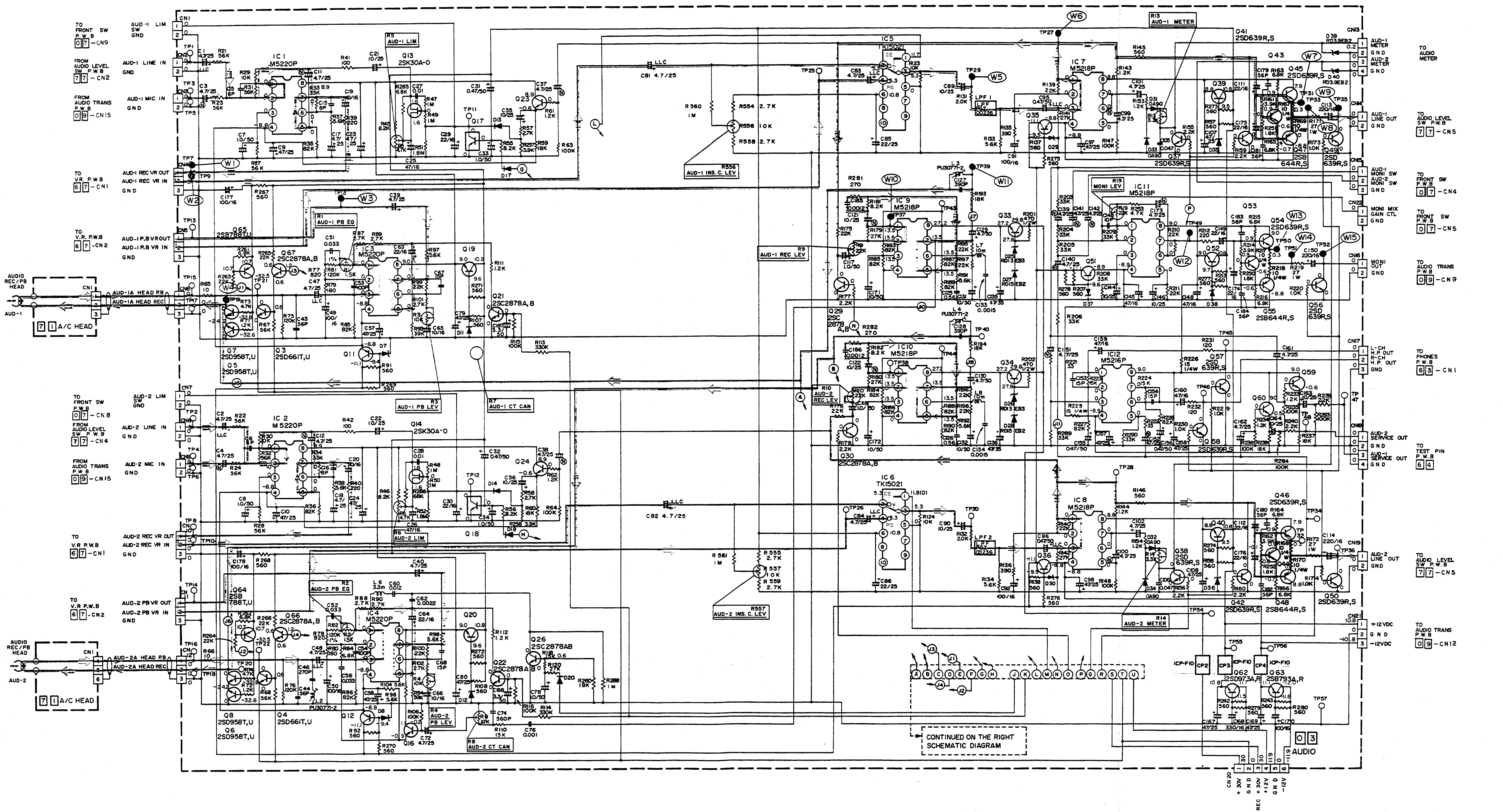
NOTES: Unless otherwise specified;

1. All resistance values are in ohms. (1/6W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.
6. Shaded ( ) parts are critical for safety. Replace only with specified part numbers.
7. NPN type transistors are 2SC2647C.
8. PNP type transistors are 2SB641Q,R.
9. All diodes are 1SS133.

DIGITAL TRANSISTOR

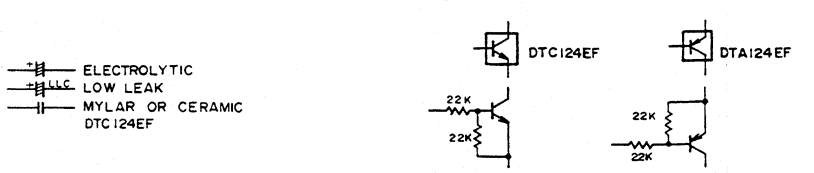


4.15 AUDIO SCHEMATIC DIAGRAM


6
5
4
3
2
1
TO FRONT SW P.W.B 07-CN9
AUD-1 LIM SW GND
FROM AUDIO LEVEL SW P.W.B 77-CN2
AUD-1 LINE IN GND
FROM AUDIO TRANS P.W.B 09-CN15
AUD-1 MIC IN GND
TO V.R. P.W.B 67-CN1
AUD-1 REC VR OUT
AUD-1 REC VR IN
GND
TO V.R. P.W.B 67-CN2
AUD-1 P.B VR OUT
AUD-1 P.B VR IN
GND
AUDIO REC/PB HEAD
AUD-1
AUD-1A HEAD PB
AUD-1A HEAD REC
71 A/C HEAD
TO FRONT SW P.W.B 07-CN8
AUD-2 LIM SW GND
FROM AUDIO LEVEL SW P.W.B 77-CN4
AUD-2 LINE IN GND
FROM AUDIO TRANS P.W.B 09-CN15
AUD-2 MIC IN GND
TO V.R. P.W.B 67-CN1
AUD-2 REC VR OUT
AUD-2 REC VR IN
GND
TO V.R. P.W.B 67-CN2
AUD-2 PB VR OUT
AUD-2 PB VR IN
GND
AUDIO REC/PB HEAD
AUD-2
AUD-2A HEAD PB
AUD-2A HEAD REC
71 A/C HEAD
IC1 M5220P
IC2 M5220P
IC3 M5220P
IC4 M5220P
IC5 TK15021
IC6 TK15021
IC7 M5218P
IC8 M5218P
IC9 M5218P
IC10 M5218P
IC11 M5218P
IC12 M5216P
R5 AUD-1 LIM
R1 AUD-1 PB EQ
R3 AUD-1 PB LEV
R7 AUD-1 CT CAN
R556 AUD-1 INS. C. LEV
R9 AUD-1 REC LEV
R13 AUD-1 METER
R19 MONI LEV
R10 AUD-2 REC LEV
R6 AUD-2 LIM
R2 AUD-2 PB EQ
R4 AUD-2 PB LEV
R8 AUD-2 CT CAN
R557 AUD-2 INS. C. LEV
R14 AUD-2 METER
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN13
CN14
CN15
CN16
CN17
CN18
CN19
CN20
CN21
CN22
TO AUDIO METER
AUD-1 METER
GND
AUD-2 METER
GND
AUD-1 LINE OUT GND
TO AUDIO LEVEL SW P.W.B 77-CN5
AUD-1 MONI SW
AUD-2 MONI SW
GND
TO FRONT SW P.W.B 07-CN4
MONI MIX GAIN CTL
GND
TO FRONT SW P.W.B 07-CN5
MONI OUT GND
TO AUDIO TRANS P.W.B 09-CN9
L-CH H.P. OUT
R-CH H.P. OUT
GND
TO PHONES P.W.B 63-CN1
AUD-2 SERVICE OUT
GND
AUD-1 SERVICE OUT
GND
TO TEST PIN P.W.B 64
AUD-2 LINE OUT GND
TO AUDIO LEVEL SW P.W.B 77-CN5
+12VDC
GND
-12VDC
TO AUDIO TRANS P.W.B 09-CN12
LLC
C81 4.7/25
C82 4.7/25
LPF 1
LPF 2
CONTINUED ON THE RIGHT SCHEMATIC DIAGRAM
03 AUDIO
REC +30V GND +30V +12V GND -12V
W1 W2 W3 W4 W5 W6 W7 W8 W9 W10 W11 W12 W13 W14 W15

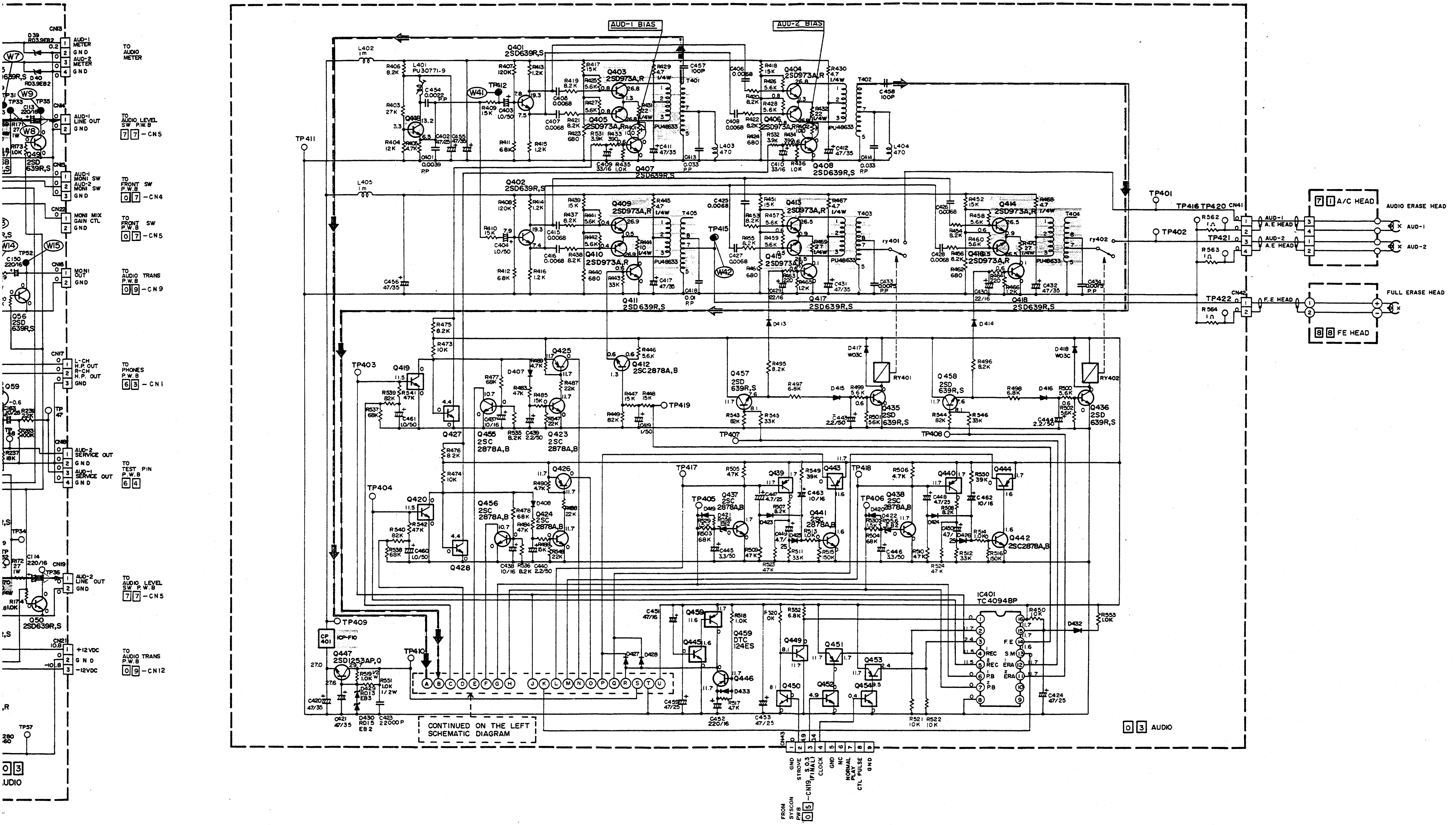
NOTES: Unless otherwise specified;

1. All resistance values are in ohms. (1/6W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.
6. Shaded (   ) parts are critical for safety. Replace only with specified part numbers.
7. NPN type transistors are 2SD637R,S.
8. PNP type transistors are 2SB642R,S.
9. NPNtype digital transistors are DTC124EF.
10. PNP type digital transistors are DTA124EF.
11. All diodes are 1SS133.
12. All zener diodes are RD10EB2.


ELECTROLYTIC
LLC LOW LEAK
MYLAR OR CERAMIC
DTC124EF
DTC124EF
DTA124EF
22K
22K
22K
22K

FROM P.W.B 06-CN3

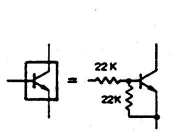
⇒ RECORDIN
⇒ PLAYBACK
⇒ EE SIGNA


AUD-1 BIAS
AUD-2 BIAS
Q401 2SD639R,S
Q402 2SD639R,S
Q403 2SD973A,R
Q404 2SD973A,R
Q405 2SD973A,R
Q406 2SD973A,R
Q407 2SD639R,S
Q408 2SD639R,S
Q409 2SD973A,R
Q410 2SD973A,R
Q411 2SD639R,S
Q412 2SC2878A,B
Q413 2SD973A,R
Q414 2SD973A,R
Q415 2SD973A,R
Q416 2SD973A,R
Q417 2SD639R,S
Q418 2SD639R,S
T401
T402
T403
T404
T405
L401 PU30771-9
L402 1m
L403 470
L404 470
L405 1m
PU48633
ry401
ry402
RY401
RY402
Q435 2SD639R,S
Q436 2SD639R,S
Q457 2SD639R,S
Q458 2SD639R,S
Q423 2SC2878A,B
Q424 2SC2878A,B
Q455 2SC2878A,B
Q456 2SC2878A,B
Q437 2SC2878A,B
Q438 2SC2878A,B
Q441 2SC2878A,B
Q442 2SC2878A,B
Q447 2SD1253AP,Q
Q459 DTC124ES
IC401 TC4094BP
CP401 ICP-F10
TP401
TP402
TP403
TP404
TP405
TP406
TP407
TP408
TP409
TP410
TP411
TP415
TP416
TP417
TP418
TP419
TP420
TP421
TP422
W41
W42
CN41
CN42
CN43
AUD-1 A.E HEAD
AUD-2 A.E HEAD
F.E HEAD
7 1 A/C HEAD
AUDIO ERASE HEAD
AUD-1
AUD-2
FULL ERASE HEAD
8 8 FE HEAD
REC
PB
S.M
ERA
F.E
CONTINUED ON THE LEFT SCHEMATIC DIAGRAM
GND
STROVE
S.0.3 (FINAL)
CLOCK
GND
NC
NORMAL PLAY
CTL PULSE
GND
FROM SYSCON PWB 0 5 -CN19
0 3 AUDIO
TO AUDIO METER
TO AUDIO LEVEL SW P.W.B 7 7 -CN5
TO FRONT SW P.W.B 0 7 -CN4
TO FRONT SW P.W.B 0 7 -CN5
TO AUDIO TRANS P.W.B 0 9 -CN9
TO PHONES P.W.B 6 3 -CN1
TO TEST PIN P.W.B 6 4
TO AUDIO LEVEL SW P.W.B 7 7 -CN5
TO AUDIO TRANS P.W.B 0 9 -CN12
AUD-1 METER
AUD-2 METER
AUD-1 LINE OUT
AUD-1 MONI SW
AUD-2 MONI SW
MONI MIX GAIN CTL
MONI OUT
L-CH H.P. OUT
R-CH H.P. OUT
AUD-2 SERVICE OUT
AUD-1 SERVICE OUT
AUD-2 LINE OUT
+12VDC
-12VDC
GND
0 3 AUDIO

➡ RECORDING SIGNAL PATH
⇨ PLAYBACK SIGNAL PATH
➡ EE SIGNAL PATH

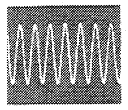
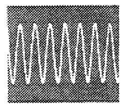
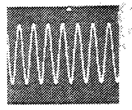
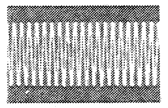
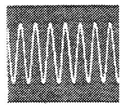
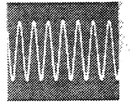
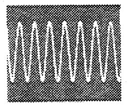
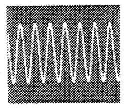
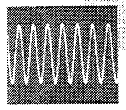
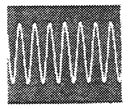
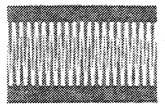
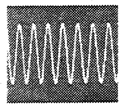
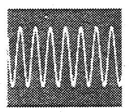
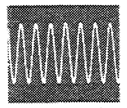
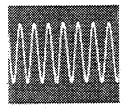
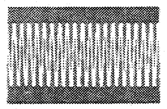
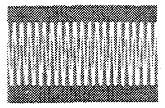
NOTES: Unless otherwise specified;

1. All resistance values are in ohms. (1/6W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.
6. Shaded ( ) parts are critical for safety. Replace only with specified part numbers.
7. NPN type transistors are 2SD637R,S.
8. PNP type transistors are 2SB642R,S.
9. NPN type digital transistors are DTC124EF.
10. PNP type digital transistors are DTA124EF.
11. All diodes are 1SS133.

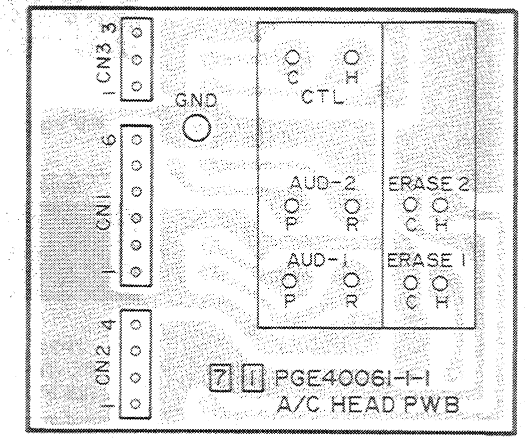


AUDIO, AUDIO CTL HEAD & FULL ERASE CIRCUIT BOARDS

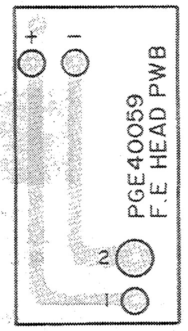
– MAIN WAVEFORMS OF AUDIO CIRCUIT –

W1  TP7 360 mVp-p, 1 kHz	W2  TP9 100 mVp-p, 1 kHz (REC)	W3  TP13 140 mVp-p, 1 kHz (PB)
W4  TP19 69 Vp-p (REC)	W5  TP29 75 mVp-p (PB)	W6  TP27 2.6 Vp-p 1 kHz (REC)
W7  TP31 2.2 Vp-p, 1 kHz (REC)	W8  TP33 2.2 Vp-p, 1kHz (REC)	W9  TP35 2.2 Vp-p, 1kHz (REC)
W10  TP37 2.2 Vp-p 1 kHz (REC)	W11  TP39 8.5 Vp-p, 70 kHz (REC)	W12  TP49 1.2 Vp-p, 1 kHz (REC)
W13  TP50 1.2 Vp-p, 1 kHz (REC)	W14  TP51 1.2 Vp-p, 1 kHz (REC)	W15  TP52 1.2 Vp-p, 1kHz (REC)
W41  TP412 9.3 Vp-p (REC) 9.6 Vp-p (PB) 70.2 kHz	W42  TP415 73.6 Vp-p 70 kHz (REC)	

– AUDIO CTL HEAD –

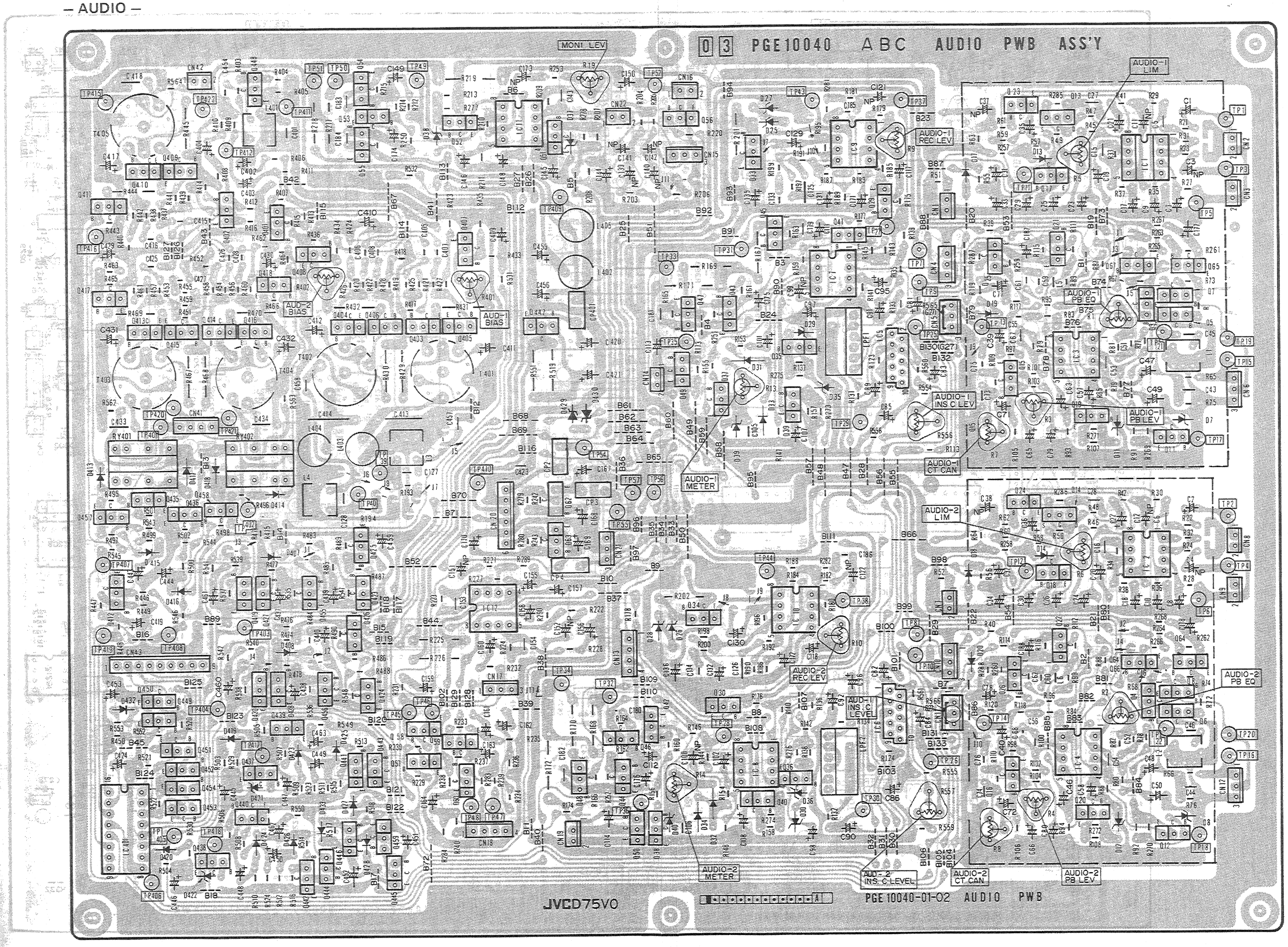

CN3
3
1
GND
C
H
CTL
CN1
6
1
AUD-2
P
R
ERASE 2
C
H
AUD-1
P
R
ERASE 1
C
H
CN2
4
1
7 1 PGE40061-1-1
A/C HEAD PWB

– FULL ERASE HEAD –

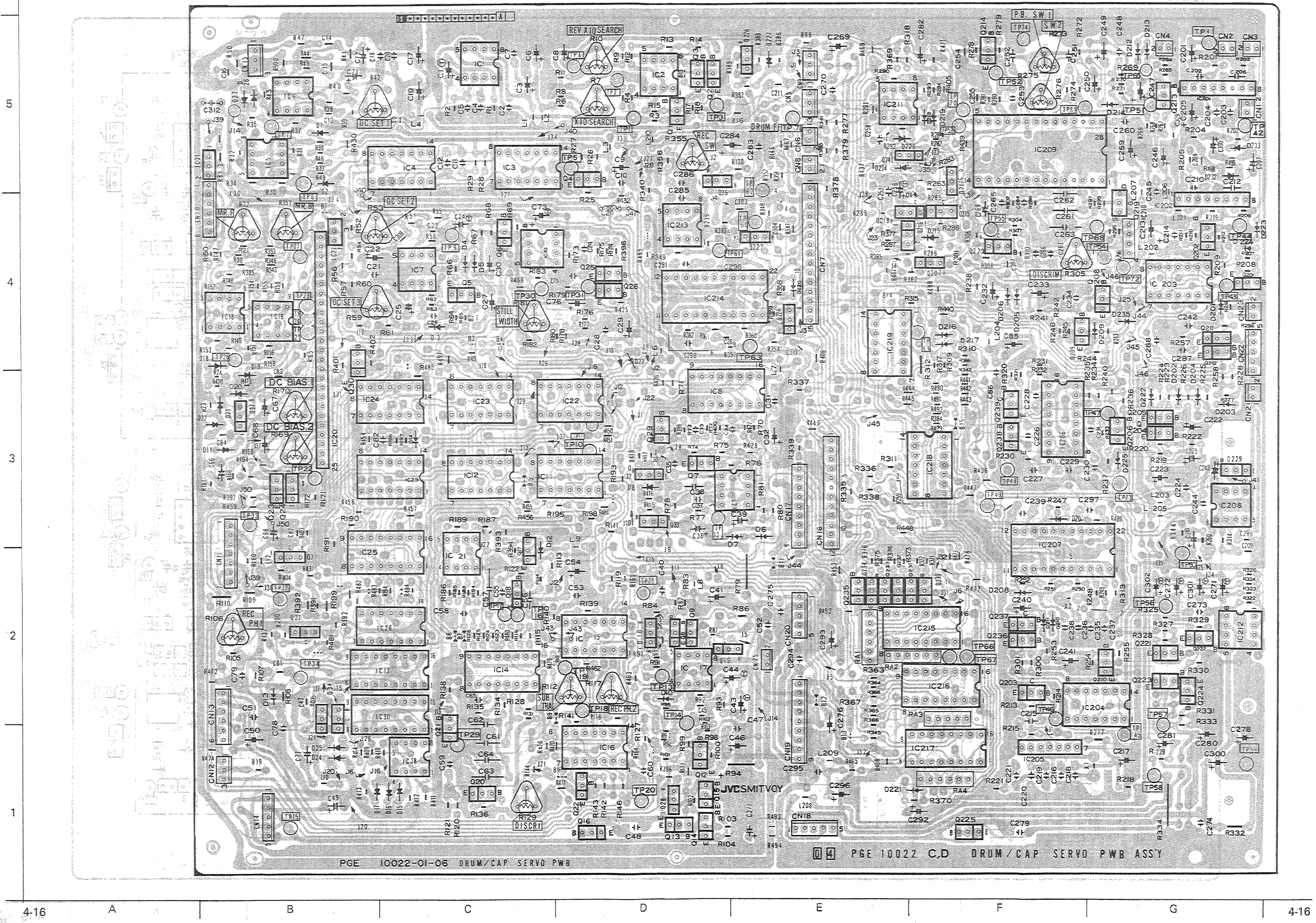

+
–
PGE40059
F.E HEAD PWB
2
1

8 8 PGE40059
FULL ERASE HEAD PWB

– AUDIO –

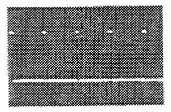
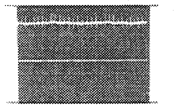
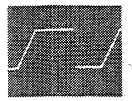
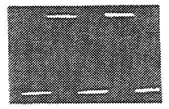
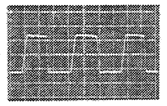
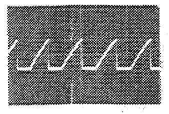
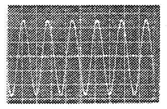
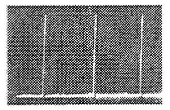
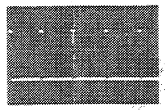

03 PGE10040 ABC AUDIO PWB ASS'Y
MONI LEV
AUDIO-1 LIM
AUDIO-1 REC LEV
AUD-2 BIAS
AUD-1 BIAS
AUDIO-1 PB EQ
AUDIO-1 INS.C LEV
AUDIO-1 PB LEV
AUDIO-1 CT CAN
AUDIO-1 METER
AUDIO-2 LIM
AUDIO-2 REC LEV
AUD-INS.C LEVEL
AUDIO-2 PB EQ
AUDIO-2 METER
AUD-2 INS.C LEVEL
AUDIO-2 CT CAN
AUDIO-2 PB LEV
JVCD75V0
PGE10040-01-02 AUDIO PWB

4.17 DRUM/CAPSTAN SERVO CIRCUIT BOARD

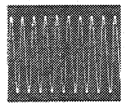
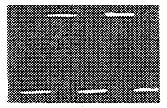
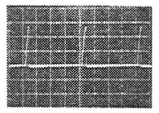
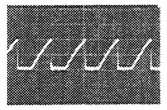
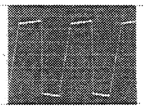
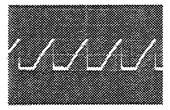
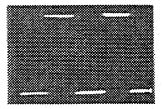
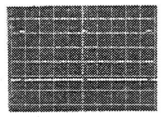
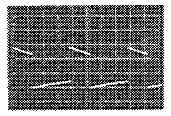

5
4
3
2
1
REV X10 SEARCH
X10 SEARCH
DC SET 1
DC SET 2
DC SET 3
DC BIAS 1
DC BIAS 2
MR.P
MR.B
STILL WIDTH
REC SW
DRUM FF
REC PH
SUB TRA
REC PHZ
DISCRI
P.B. SW1
SW2
IC209
IC214
IC207
JVCSMITVOY
PGE 10022-01-06 DRUM/CAP SERVO PWB
04 PGE 10022 C,D DRUM/CAP SERVO PWB ASS'Y
A
B
C
D
E
F
G

– MAIN WAVEFORMS OF DRUM/CAPSTAN CIRCUIT –

(DRUM SERVO SECTION)

W41  TP48 4.9 Vp-p	W42  TP58 63 mVp-p Offset DC : 147 mV	W43  TP52 12 Vp-p
W44  TP71 10.5 Vp-p (25 Hz)	W45  IC209- ⑪ 5.52 Vp-p	W46  IC209- ⑬ 3.8 Vp-p
W47  TP55 1.3 Vp-p 2950 Hz	W48  TP60 5.6 Vp-p	W49  TP63 5 Vp-p 50 Hz (REC)

(CAPSTAN SERVO SECTION)

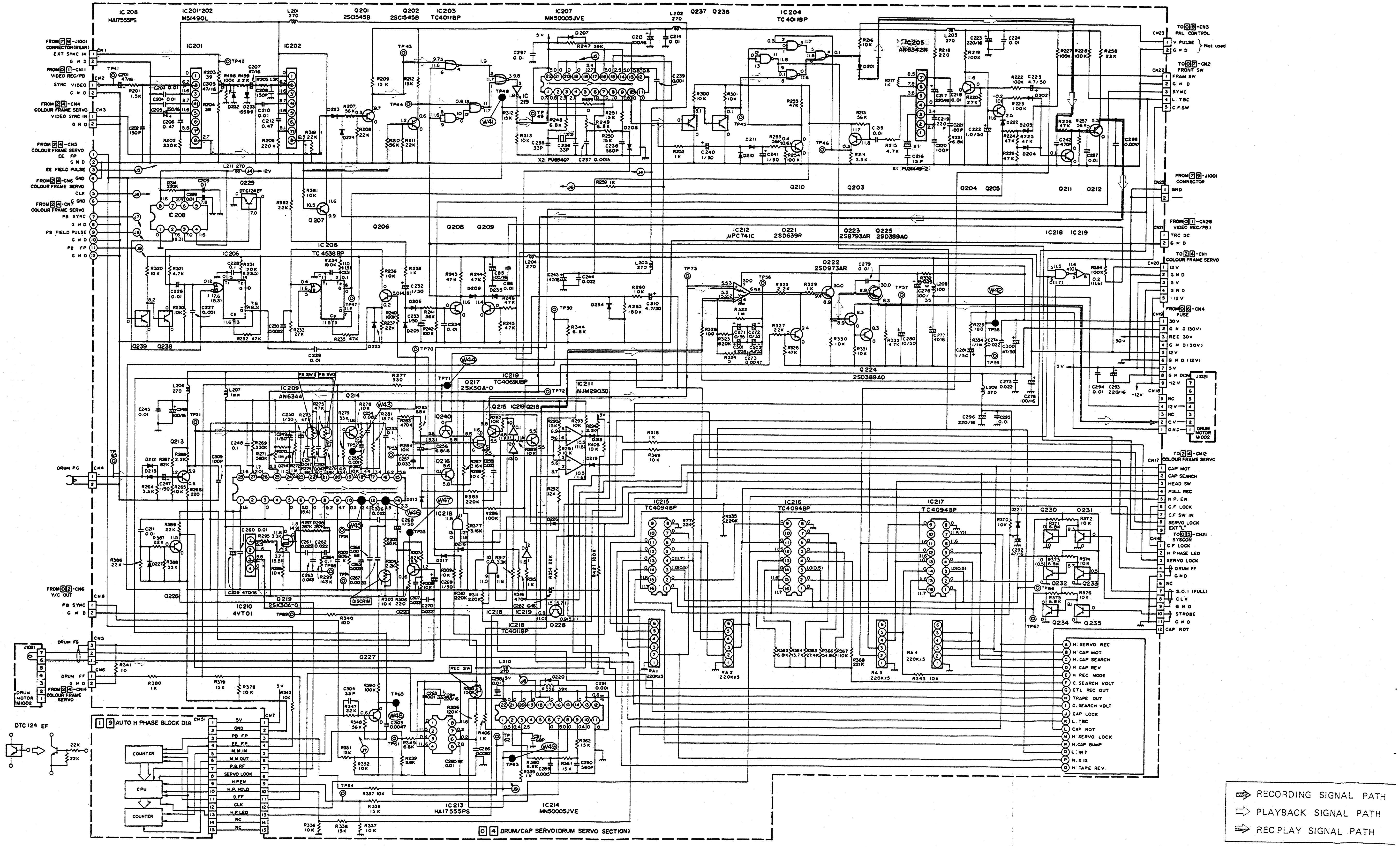
W1  TP9 2.2 Vp-p 450 Hz	W2  TP10 11.6 Vp-p 450 Hz	W3  TP16 5.7 Vp-p (REC)	 TP16 5.8 Vp-p (PB)
W4  TP17 25 Hz	W5  IC14-③ 4.0 Vp-p	W6  IC14-④ 5.7 Vp-p	
W7  IC14-⑤ 3.3 Vp-p 225 Hz	W8  TP34 12.2 Vp-p 25 Hz		

4.18 DRUM/CAPSTAN SERVO SCHEMATIC DIAGRAM

– DRUM SERVO SECTION –

NOTES: Unless otherwise specified;

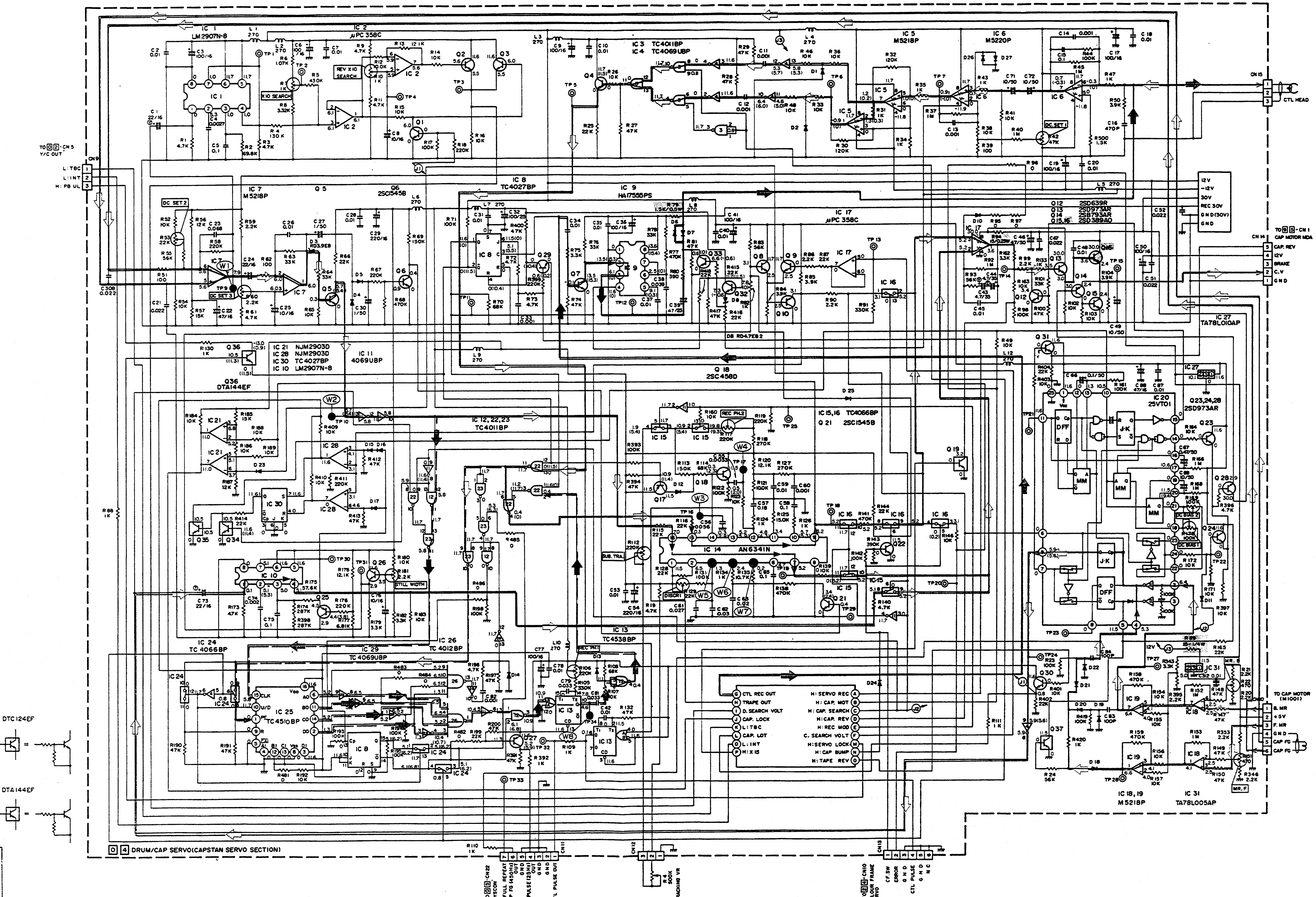
1. All resistance values are in ohms. (1/6W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.
6. Shaded ( ) parts are critical for safety. Replace only with specified part numbers.
7. NPN type transistors are 2SD636Q,R.
8. PNP type transistors are 2SB641Q,R.
9. NPN type digital transistors are DTC124EF.
10. All diodes are 1SS133.


IC208 HA17555PS
IC201-202 M51490L
Q201 2SC1545B
Q202 2SC1545B
IC203 TC4011BP
IC207 MN50005JVE
IC204 TC4011BP
IC205 AN6342N
IC206 TC4538BP
IC212 μPC741C
Q221 2SD639R
Q223 2SB793AR
Q225 2SD389AO
Q222 2SD973AR
Q224 2SD389AO
IC209 AN6344
IC219 TC4069UBP
Q217 2SK30A-O
IC211 NJM2903D
IC215 TC4094BP
IC216 TC4094BP
IC217 TC4094BP
IC210 4VT01
Q219 2SK30A-O
IC218 TC4011BP
IC213 HA17555PS
IC214 MN50005JVE
DRUM PG
DRUM FG
DRUM FF
DRUM MOTOR M1002
DTC 124 EF
1 9 AUTO H PHASE BLOCK DIA
COUNTER
CPU
COUNTER
5V
GND
PB FP
EE FP
M.M.IN
M.M.OUT
P.B.RF
SERVO LOOK
H.PEN
H.P. HOLD
D.FF
CLK
H.P.LED
NC
NC
0 4 DRUM/CAP SERVO(DRUM SERVO SECTION)
TO 0 8-CN3 PAL CONTROL
V. PULSE
GND
Not used
TO 0 7-CN2 FRONT SW
FROM 7 9-J1001 CONNECTOR
FROM 0 1-CN28 VIDEO REC/PB
TO 2 4-CN1 COLOUR FRAME SERVO
FROM 0 6-CN4 FUSE
TO 2 4-CN12 COLOUR FRAME SERVO
TO 0 6-CN21 SYSCON
A H: SERVO REC
B H: CAP MOT
C H: CAP SEARCH
D H: CAP REV
E H: REC MODE
F C. SEARCH VOLT
G CTL REC OUT
H TRAPE OUT
I D. SEARCH VOLT
J CAP LOCK
K L TBC
L CAP ROT
M H: SERVO LOCK
N H:CAP BUMP
O L:IN 7
P H: X 15
Q H: TAPE REV.
RECORDING SIGNAL PATH
PLAYBACK SIGNAL PATH
REC PLAY SIGNAL PATH

– CAPSTAN SERVO SECTION –

NOTES: Unless otherwise specified;

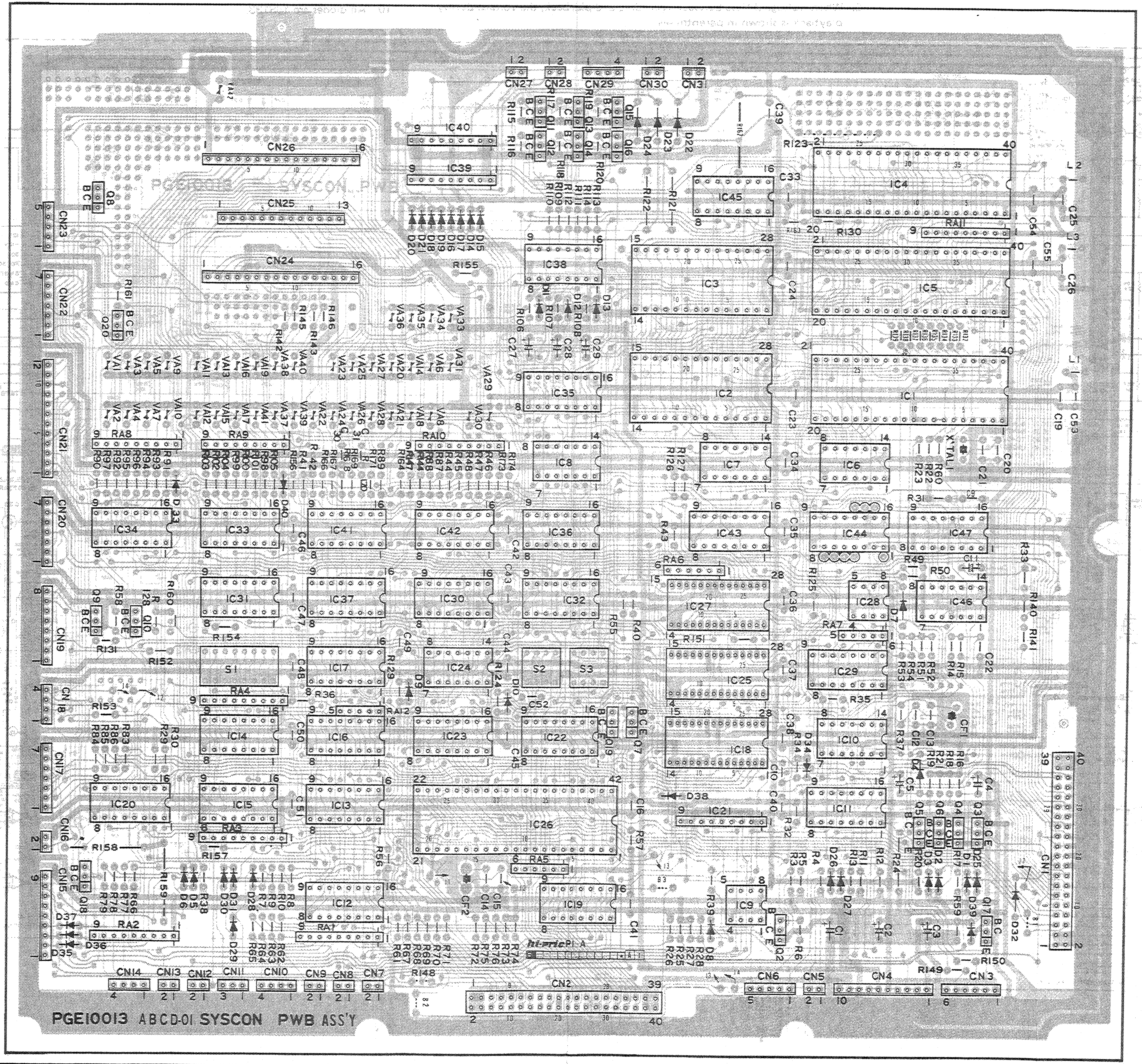
1. All resistance values are in ohms. (1/6W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.
6. Shaded (▨) parts are critical for safety. Replace only with specified part numbers.
7. NPN type transistors are 2SD636Q,R.
8. PNP type transistors are 2SB641Q,R.
9. NPN type digital transistors are DTC124EF.
10. All diodes are 1SS133.


IC 1 LM2907N-8
IC 2 μPC 358C
IC 3 TC4011BP
IC 4 TC4069UBP
IC 5 M5218P
IC 6 M5220P
IC 7 M5218P
IC 8 TC4027BP
IC 9 HA17555PS
IC 17 μPC 358C
IC 21 NJM2903D
IC 28 NJM2903D
IC 30 TC4027BP
IC 10 LM2907N-8
IC 11 4069UBP
IC 12, 22, 23 TC4011BP
IC 14 AN6341N
IC15,16 TC4066BP
Q 21 2SC1545B
IC 13 TC4538BP
IC 24 TC 4066BP
IC 29 TC 4069UBP
IC 26 TC 4012BP
IC 25 TC4510BP
IC 20 25VT01
Q23,24,28 2SD973AR
IC 27 TA78L010AP
Q12 2SD639R
Q13 2SD973AR
Q14 2SB793AR
Q15,16 2SD389AQ
Q6 2SC1545B
Q 18 2SC458D
Q36 DTA144EF
D8 RD4.7EB2
IC 18,19 M5218P
IC 31 TA78L005AP
TO ⓄⒹ-CN5 Y/C OUT
L: TBC
L: INT
H: PB UL
CN9
CN15
CTL HEAD
CN14
TO ⓄⒷ-CN1 CAP MOTOR MDA
CAP. REV
12V
BRAKE
C.V
GND
12V
-12V
30V
REC 30V
GND(30V)
GND
TO CAP MOTOR (M1001)
B.MR
+5V
F.MR
GND
CAP FG
CAP FG
CTL REC OUT
TRAPE OUT
D.SEARCH VOLT
CAP. LOCK
L: TBC
CAP. LOT
L: INT
H: X 1/5
H: SERVO REC
H: CAP. MOT
H: CAP. SEARCH
H: CAP. REV
H: REC MOD
C. SEARCH VOLT
H: SERVO LOCK
H: CAP BUMP
H: TAPE REV
DC SET 2
DC SET 3
DC SET 1
REV X10 SEARCH
X10 SEARCH
SUB. TRA.
REC PH.2
DISCRI
STILL WIDTH
TO ⓄⒷ-CN22 SYSCON
FULL REPEAT
CAP FG (ASCHK) OUT
GND
CAP PULSE (25Hz) IN
GND
CTL PULSE OUT
500K TRACKING VR
TO ⓄⓃ-CN10 COLOUR FRAME SERVO
CF.SW
ERROR
GND
CTL PULSE
GND
NC
Ⓞ④ DRUM/CAP SERVO(CAPSTAN SERVO SECTION)
DTC124EF
DTA144EF

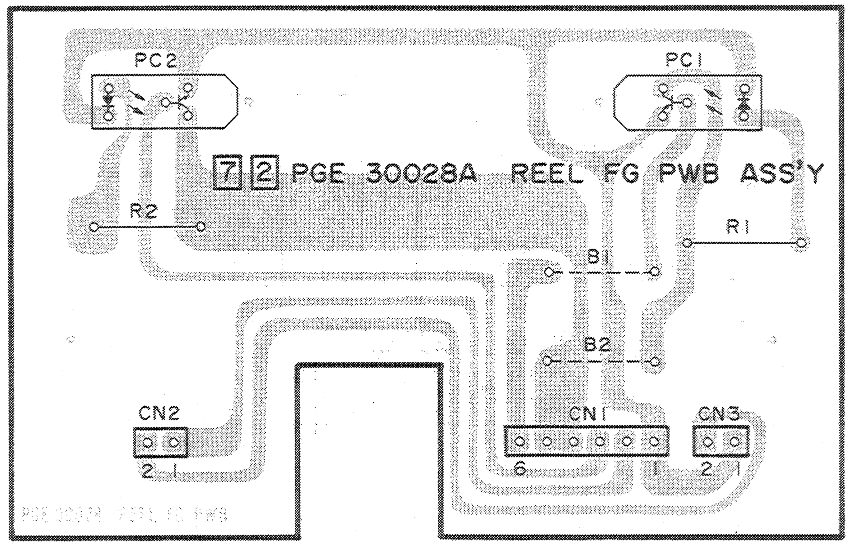
▶ RECORDING SIGNAL PATH
▷ PLAYBACK SIGNAL PATH
⇨ REC PLAY SIGNAL PATH

4.19 SYSCON, LED (36 – 39), PHOTO TRANSISTOR, CC1, CC2, CC3, REEL FG AND HOUR METER CIRCUIT BOARDS

– SYSCON –

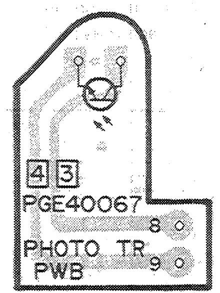

PGE10013 ABCD-01 SYSCON PWB ASS'Y
IC1
IC2
IC3
IC4
IC5
IC26
CN2
CN21
CN24
CN25
CN26
CN1
S1
S2
S3
X'TAL
hi-ric P1-A
6
5
4
3
2
1
A
B
C
4-18
4-18
E
F
G

– REEL FG –


PC2
PC1
72 PGE 30028A REEL FG PWB ASS'Y
R2
R1
B1
B2
CN2
2 1
CN1
6 1
CN3
2 1

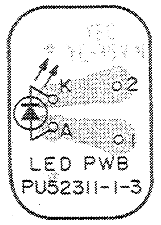
– PHOTO TRANSISTOR –

(TU. TAPE SLACK)


43
PGE40067
8
PHOTO TR
PWB
9

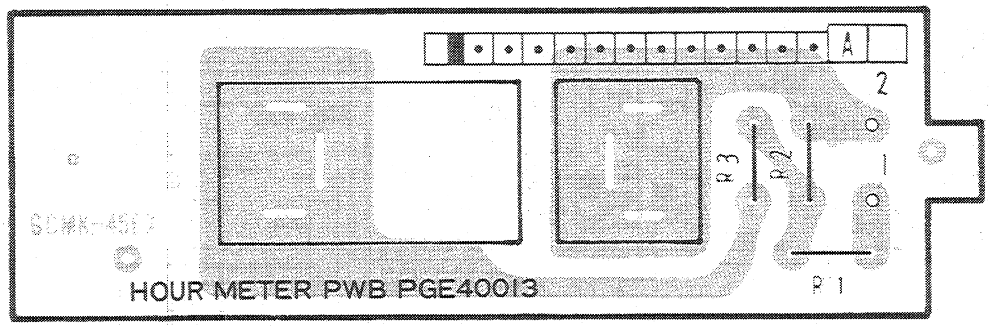
43 PHOTO TRANSISTOR (TU TAPE SLACK) PWB

– LED –


K
2
A
1
LED PWB
PU52311-1-3

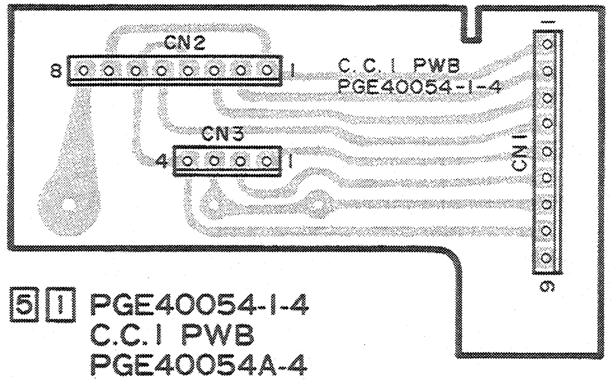
36 LED (TAPE START) PWB
37 LED (TAPE END) PWB
38 LED (SUP TAPE SLACK) PWB
39 LED (TU TAPE SLACK) PWB

– HOUR METER –


A
2
1
R3
R2
R1
HOUR METER PWB PGE40013

97 PGE40013
HOUR METER PWB

– CC1 –


CN2
8
1
C. C. 1 PWB
PGE40054-1-4
CN3
4
1
CN1
1
6

51 PGE40054-1-4
C.C.1 PWB
PGE40054A-4
C.C.1 PWB ASS'Y

– CC2 –

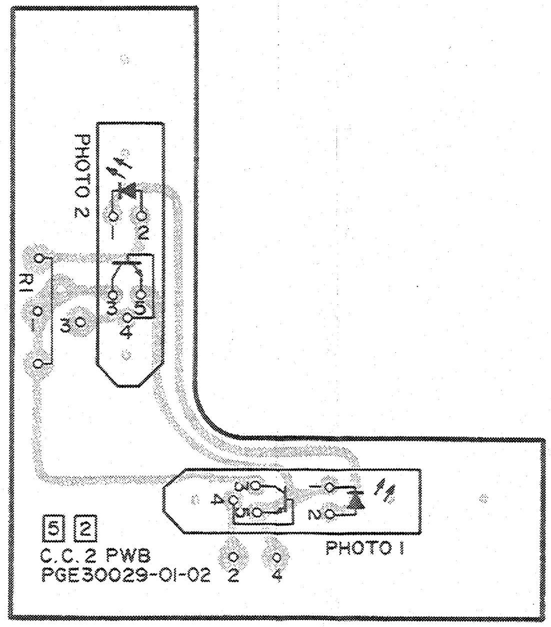
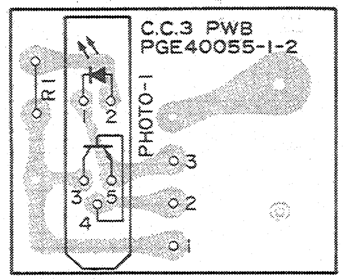


PHOTO 2
1
2
R1
3
4
52
C.C. 2 PWB
PGE30029-01-02
2
4
PHOTO 1

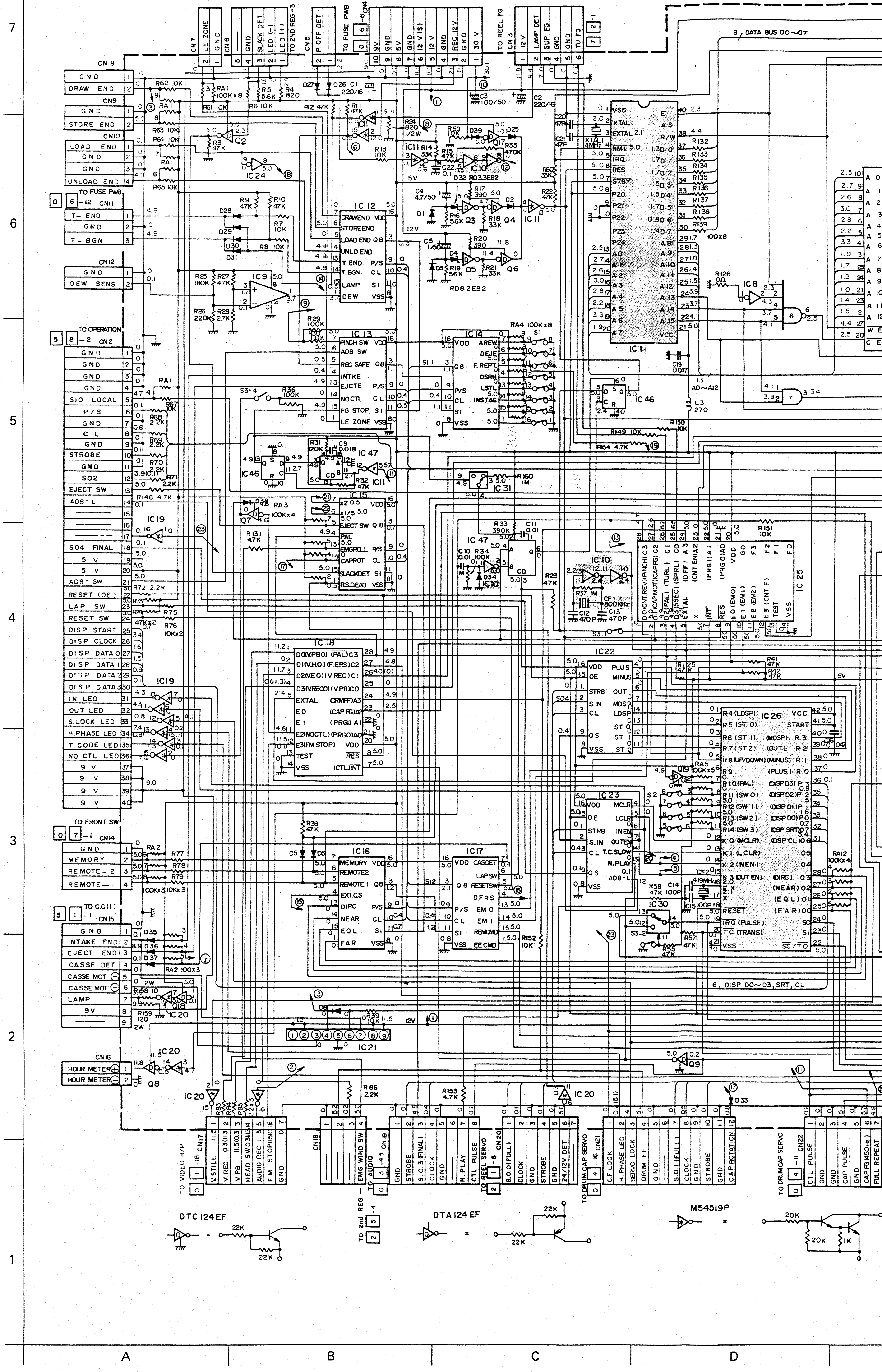
52 PGE30029-01-02
C.C.2 PWB
PGE30029A-01
C.C.2 PWB ASS'Y

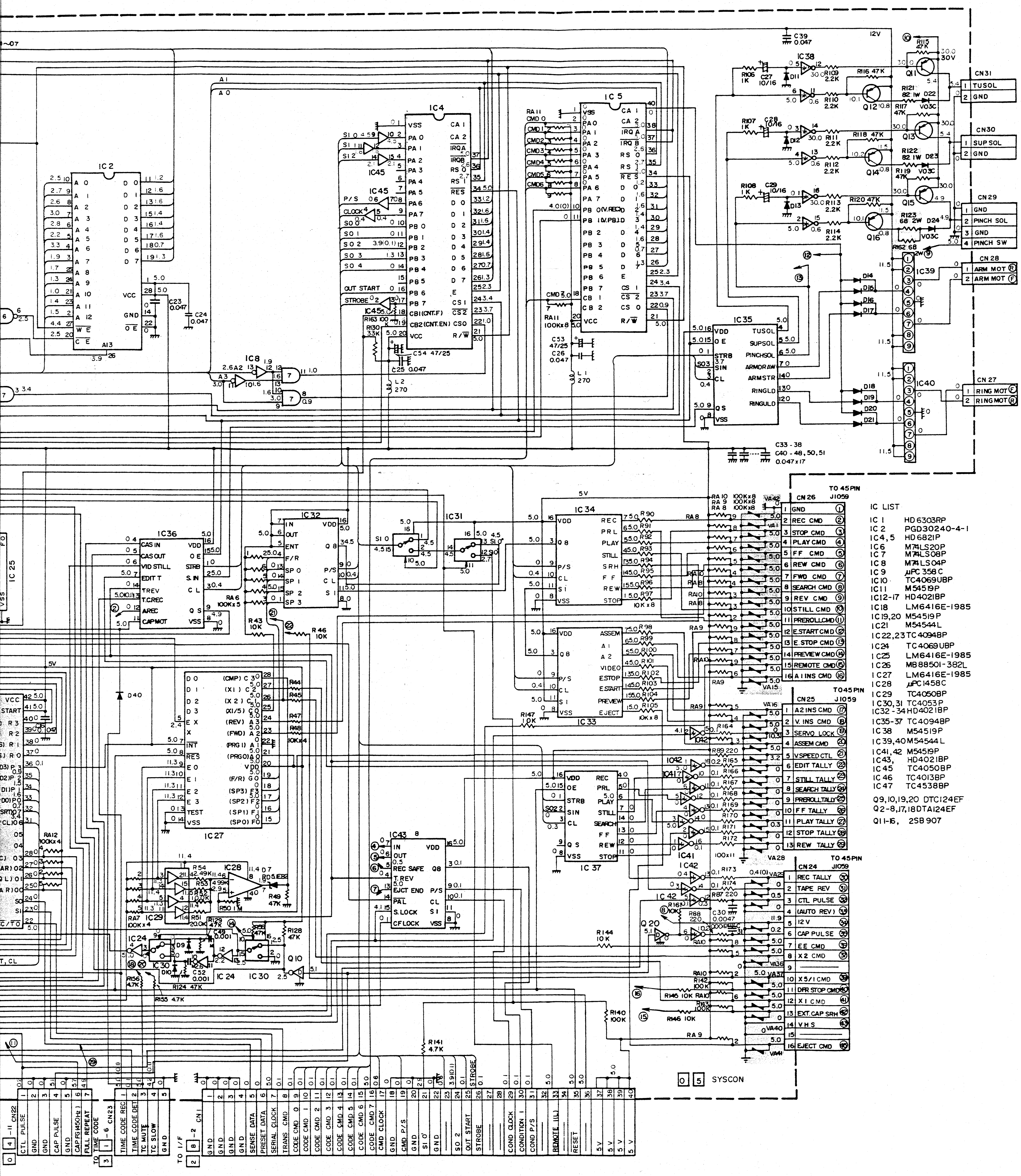
– CC3 –


C.C.3 PWB
PGE40055-1-2
R1
PHOTO-1
1
2
3
4
3
2
1

53 PGE40055-1-2
C.C.3 PWB
PGE40055A-03
C.C.3 PWB ASS'Y

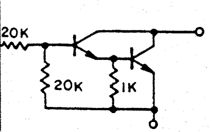
4.20 SYSCON SCHEMATIC DIAGRAM


CN7
LE ZONE
GND
CN6
GND
SLACK DET
LED (-)
LED (+)
TO 2ND REG-3
CN5
P. OFF DET
TO FUSE PWB
6 -6 CN4
9V
GND
5V
GND
12 V (S)
12 V
GND
REC 12V
GND
30 V
TO REEL FG
CN3
12V
LAMP DET
SUP FG
GND
TU FG
7 2 -1
8, DATA BUS D0~D7
CN8
GND
DRAW END
CN9
GND
STORE END
CN10
LOAD END
GND
GND
UNLOAD END
TO FUSE PWB
0 6 -12 CN11
T- END
GND
T- BGN
CN12
GND
DEW SENS
TO OPERATION
5 8 -2 CN2
GND
GND
GND
GND
SIO LOCAL
P/S
GND
CL
GND
STROBE
GND
SO2
EJECT SW
ADB-L
SO4 FINAL
5 V
5 V
ADB-SW
RESET (OE)
LAP SW
RESET SW
DISP START
DISP CLOCK
DISP DATA 0
DISP DATA 1
DISP DATA 2
DISP DATA 3
IN LED
OUT LED
S.LOCK LED
H.PHASE LED
T CODE LED
NO CTL LED
9 V
9 V
9 V
9 V
TO FRONT SW
0 7 -1 CN14
GND
MEMORY
REMOTE-2
REMOTE-1
TO C.C(1)
5 1 -1 CN15
GND
INTAKE END
EJECT END
CASSE DET
CASSE MOT ⊕
CASSE MOT ⊖
LAMP
9V
CN16
HOUR METER ⊕
HOUR METER ⊖
IC1
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC21
IC22
IC23
IC24
IC25
IC26
IC30
IC31
IC46
IC47
DRAWEND
STOREEND
LOAD END
UNLD END
T. END
T. BGN
LAMP
DEW
PINCH SW
ADB SW
REC SAFE
INTKE
EJCTE
NOCTL
FG STOP
LE ZONE
AREW
DEJE
F. REPT
DSRH
LSTL
INSTAG
EJECT SW
CAPROT
SLACKDET
RSDEAD
EMGROLL
MEMORY
REMOTE2
REMOTE1
EXT.CS
DIRC
NEAR
EQL
FAR
CASDET
LAPSW
RESETSW
DFRS
EM0
EM1
REMOMD
EECMD
XTAL1 4MHz
CF1 800KHz
CF2 4.19MHz
RA4 100K×8
S1
S2
S3-1
S3-2
S3-4
R149 10K
R150 10K
L3 270
A0~A12
6, DISP D0~D3, SRT, CL
100K×8
R86 2.2K
R153 4.7K
D33
Q8
Q9
TO VIDEO R/P
0 1 -18 CN17
V.STILL
V.REC
V.PB
HEAD SW
AUDIO REC
FM STOP
GND
CN18
EMG WIND SW
TO AUDIO
0 3 -43 CN19
TO 2nd REG-4
2
GND
STROBE
S.O.3 (FINAL)
CLOCK
GND
N.PLAY
CTL PULSE
TO REEL SERVO
2 1 -6 CN20
S.O.0 (FULL)
CLOCK
GND
STROBE
24/12V DET
TO DRUM CAP SERVO
0 4 -16 CN21
CF LOCK
H PHASE LED
SERVO LOCK
DRUM FF
GND
S.O.1 (FULL)
CLOCK
GND
STROBE
CAP ROTATION
TO DRUM CAP SERVO
0 4 -11 CN22
CTL PULSE
GND
GND
CAP PULSE
GND
CAP FG (450Hz)
FULL REPEAT
DTC 124 EF
22K
22K
DTA 124 EF
22K
22K
M54519P
20K
20K
1K
A
B
C
D
1
2
3
4
5
6
7


SYSCON
IC2
IC4
IC5
IC8
IC24
IC25
IC27
IC28
IC29
IC30
IC31
IC32
IC33
IC34
IC35
IC36
IC37
IC38
IC39
IC40
IC41
IC42
IC43
IC45
CN22
CN23
CN24
CN25
CN26
CN27
CN28
CN29
CN30
CN31
TO 45PIN J1059
TO I/F
TUSOL
SUP SOL
PINCH SOL
PINCH SW
ARM MOT
RING MOT

IC LIST

IC 1	HD6303RP
IC 2	PGD30240-4-1
IC4, 5	HD6821P
IC6	M74LS20P
IC7	M74LS08P
IC8	M74LS04P
IC9	µPC 358 C
IC10	TC4069UBP
IC11	M54519P
IC12-17	HD4021BP
IC18	LM6416E-1985
IC19,20	M54519P
IC21	M54544L
IC22,23	TC4094BP
IC24	TC4069UBP
IC25	LM6416E-1985
IC26	MB88501-382L
IC27	LM6416E-1985
IC28	µPC1458C
IC29	TC4050BP
IC30,31	TC4053P
IC32-34	HD4021BP
IC35-37	TC4094BP
IC38	M54519P
IC39,40	M54544L
IC41,42	M54519P
IC43,	HD4021BP
IC45	TC4050BP
IC46	TC4013BP
IC47	TC4538BP
Q9,10,19,20	DTC124EF
Q2-8,17,18	DTA124EF
Q11-16,	2SB907



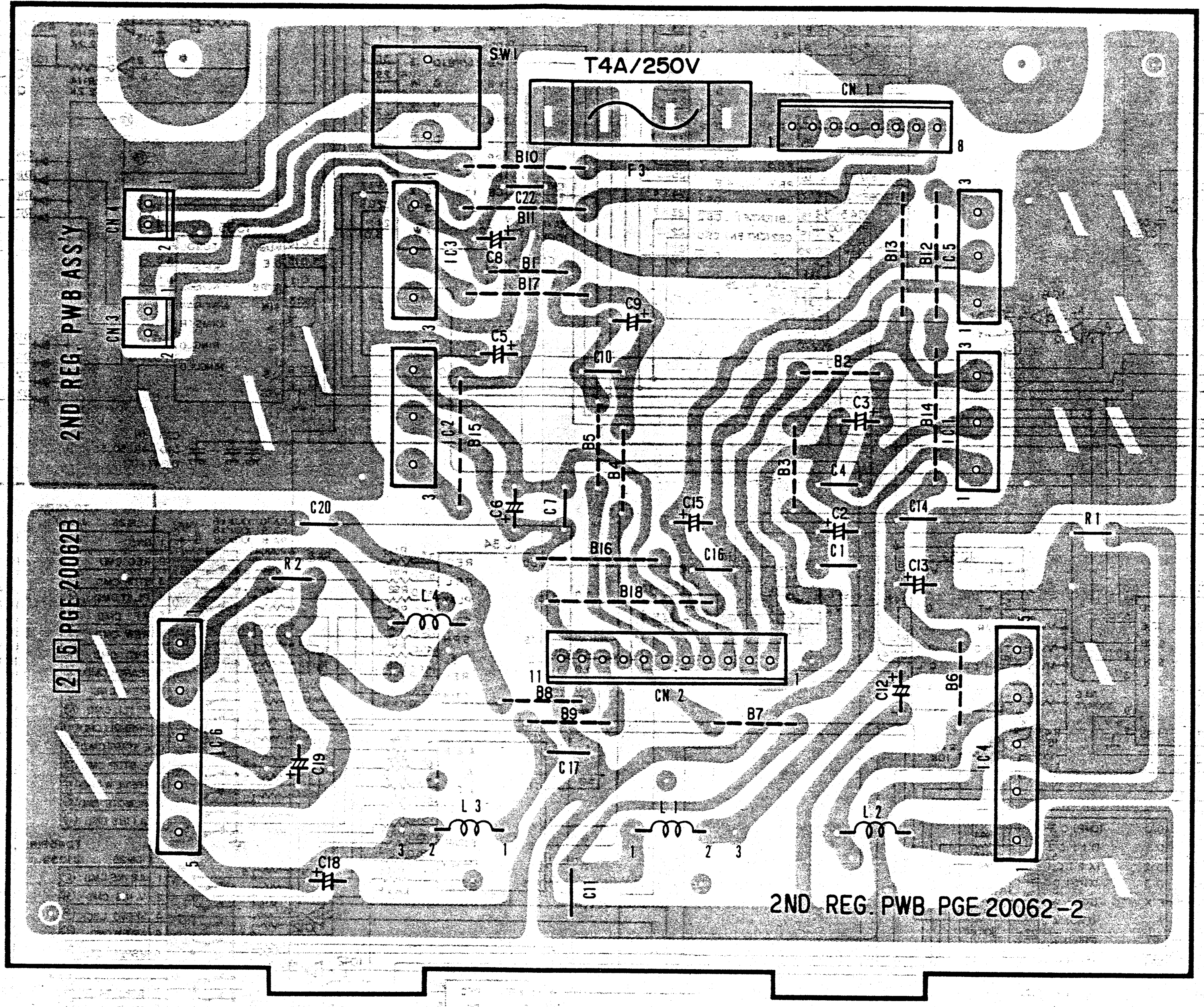
NOTES: Unless otherwise specified;

1. All resistance values are in ohms. (1/6 W), (1/8 W).
2. All inductance values are in µH.
3. All capacitance values are in µF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.
6. Shaded (▨) parts are critical for safety. Replace only with specified part numbers.
7. PNP type transistors are 2SB907.
8. NPN type digital transistors are DTC124EF.
9. PNP type digital transistors are DTA124EF.
10. All diodes are 1SS133.

E	F	G	H	I

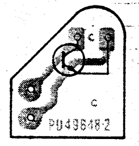
4.21 FUSE, 2ND REGULATOR & PHOTO TRANSISTORS CIRCUIT BOARDS

– 2ND REGULATOR –


SW1
T4A/250V
CN1
8
1
B10
F3
C22
B11
C8
B1
B17
IC3
C9
C5
C10
B2
C3
B13
B12
IC5
IC1
B14
B3
C4
IC2
B15
B5
B4
C6
C7
C15
C14
C2
C1
R1
C20
C16
B16
C13
R2
L4
B18
CN2
11
B8
B9
B7
B6
C12
IC6
C19
C17
L3
L1
L2
IC4
C18
C11
CN1
CN3
2ND REG. PWB ASS'Y
25 PGE 20062B
2ND REG. PWB PGE 20062-2

– PHOTO TRANSISTOR –

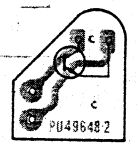
(TAPE START SENSOR)



40 PU49648-2
PHOTO TRANSISTOR
(TAPE START SENSOR) PWB
PU48261G
PHOTO TRANSISTOR
(TAPE START SENSOR) PWB ASS'Y

– PHOTO TRANSISTOR –

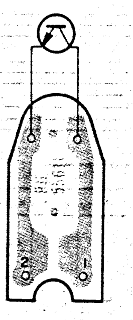
(SUP TAPE SLACK)



42 PU49648-2
PHOTO TRANSISTOR
(SUPPLY TAPE SLACK) PWB
PU48261G
PHOTO TRANSISTOR
(SUPPLY TAPE SLACK) PWB ASS'Y

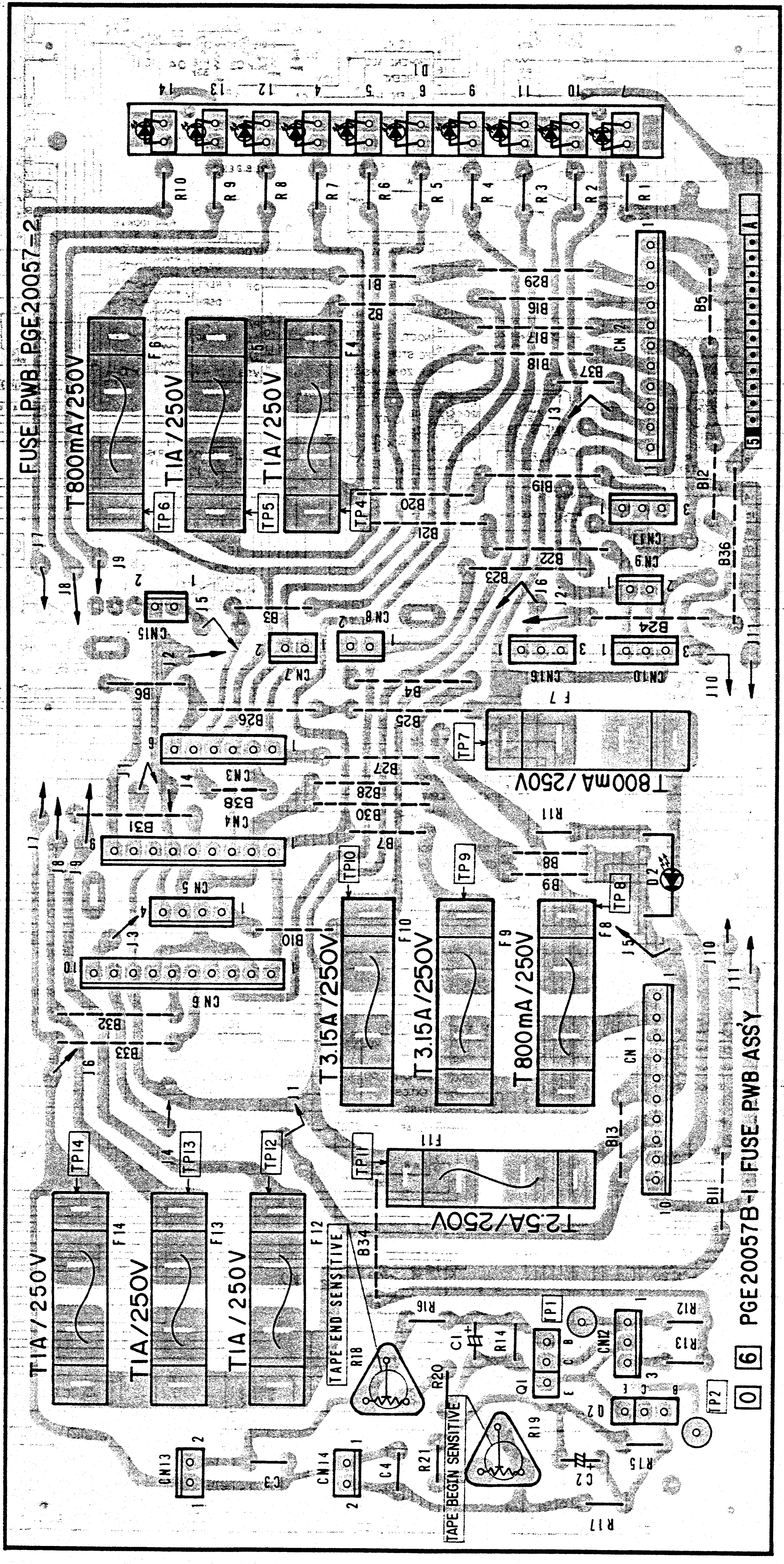
– PHOTO TRANSISTOR –

(TAPE END SENSOR)



41 PU55611
PHOTO TRANSISTOR
(TAPE END SENSOR) PWB
PU48261F
PHOTO TRANSISTOR
(TAPE END SENSOR) PWB AS

– FUSE –

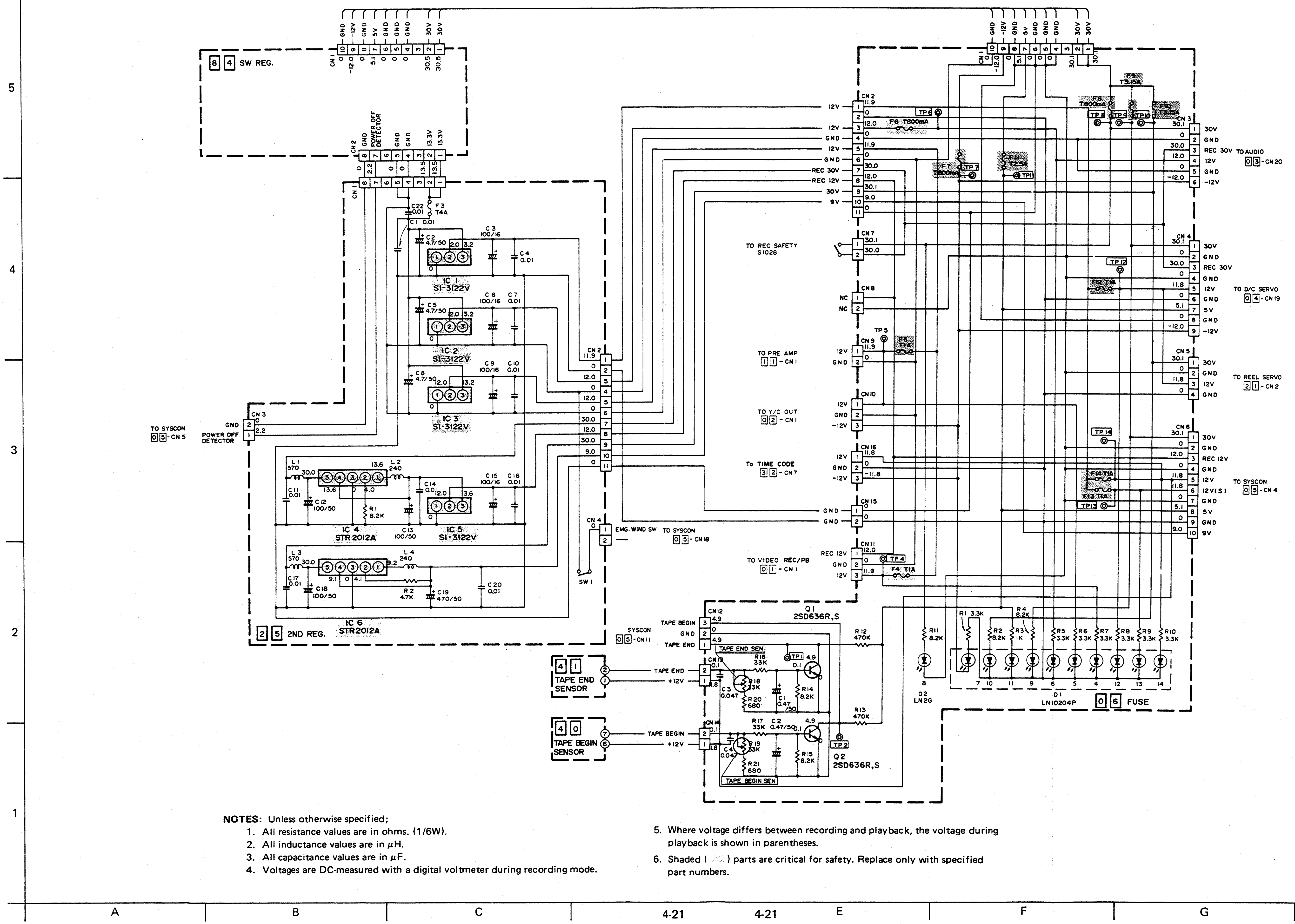

FUSE PWB PGE20057-2
T800mA/250V
T1A/250V
T1A/250V
TP4
TP5
TP6
T800mA/250V
TP7
T3.15A/250V
T3.15A/250V
T800mA/250V
T2.5A/250V
T1A/250V
T1A/250V
T1A/250V
TP8
TP9
TP10
TP11
TP12
TP13
TP14
TAPE END SENSITIVE
TAPE BEGIN SENSITIVE
FUSE PWB ASS'Y
PGE20057B-1
0 6
TP1
TP2

STOR –
SOR)

ISTOR
NSOR) PWB

ISTOR
NSOR) PWB ASS'Y

4.22 FUSE, 2ND REGULATOR SCHEMATIC DIAGRAMS

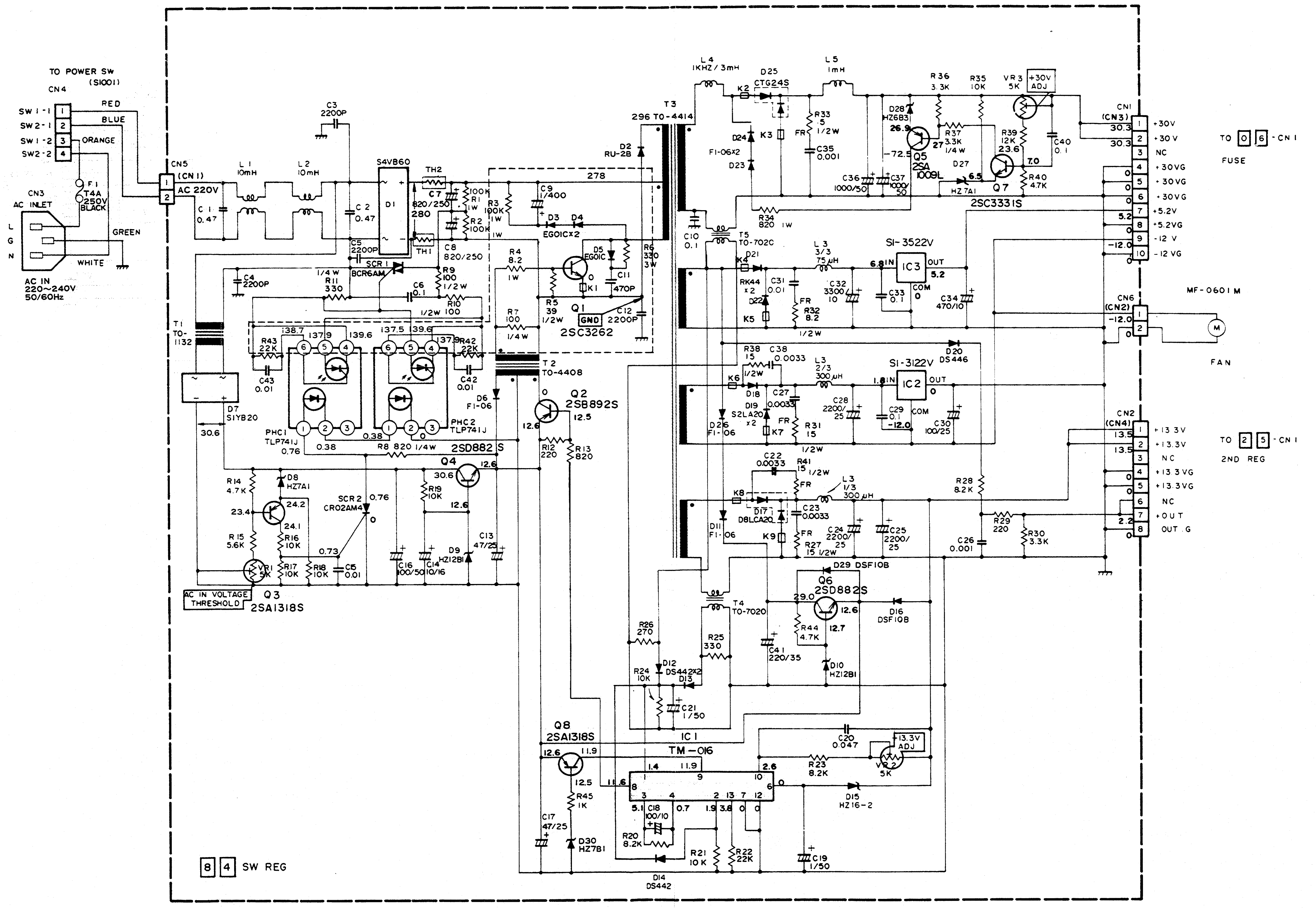


8 4 SW REG.
CN 1
GND
-12V
5V
30V
CN 2
POWER OFF DETECTOR
13.3V
CN 3
TO SYSCON 0 5 - CN 5
POWER OFF DETECTOR
C22 0.01
F3 T4A
C1 0.01
C2 4.7/50
C3 100/16
C4 0.01
IC 1 SI-3122V
C5 4.7/50
C6 100/16
C7 0.01
IC 2 SI-3122V
C8 4.7/50
C9 100/16
C10 0.01
IC 3 SI-3122V
L1 570
L2 240
C11 0.01
C12 100/50
R1 8.2K
C13 100/50
C14 0.01
C15 100/16
C16 0.01
IC 4 STR2012A
IC 5 SI-3122V
L3 570
L4 240
C17 0.01
C18 100/50
R2 4.7K
C19 470/50
C20 0.01
IC 6 STR2012A
2 5 2ND REG.
CN 4
EMG. WIND SW
TO SYSCON 0 5 - CN18
SW 1
4 1 TAPE END SENSOR
4 0 TAPE BEGIN SENSOR
TAPE END
TAPE BEGIN
+12V
SYSCON 0 5 - CN 11
CN12
Q1 2SD636R,S
Q2 2SD636R,S
R12 470K
R13 470K
R16 33K
R17 33K
R18 33K
R19 33K
R14 8.2K
R15 8.2K
R20 680
R21 680
C1 0.47/50
C2 0.47/50
C3 0.047
C4 0.047
TAPE END SEN
TAPE BEGIN SEN
TP 1
TP 2
TO REC SAFETY S1028
CN 7
CN 8
NC
TO PRE AMP 1 1 - CN 1
CN 9
TP 5
F5 T1A
TO Y/C OUT 0 2 - CN 1
CN 10
To TIME CODE 3 2 - CN 7
CN 16
CN 15
TO VIDEO REC/PB 0 1 - CN 1
CN 11
TP 4
F4 T1A
REC 30V
REC 12V
9V
F6 T800mA
TP 6
F7 T800mA
TP 7
F11 T2.5A
TP 1
F8 T800mA
TP 8
F9 T3.15A
TP 9
F10 T3.15A
TP 10
TO AUDIO 0 3 - CN 20
TP 12
F12 T1A
TO D/C SERVO 0 4 - CN 19
TO REEL SERVO 2 1 - CN 2
TP 14
F14 T1A
F13 T1A
TP 13
TO SYSCON 0 5 - CN 4
12V(S)
R1 3.3K
R2 8.2K
R3 1K
R4 8.2K
R5 3.3K
R6 3.3K
R7 3.3K
R8 3.3K
R9 3.3K
R10 3.3K
R11 8.2K
D2 LN2G
D1 LN10204P
0 6 FUSE
6
5
4
3
2
1
A
B
C
E
F
G
H

NOTES: Unless otherwise specified;

1. All resistance values are in ohms. (1/6W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.
6. Shaded ( ) parts are critical for safety. Replace only with specified part numbers.

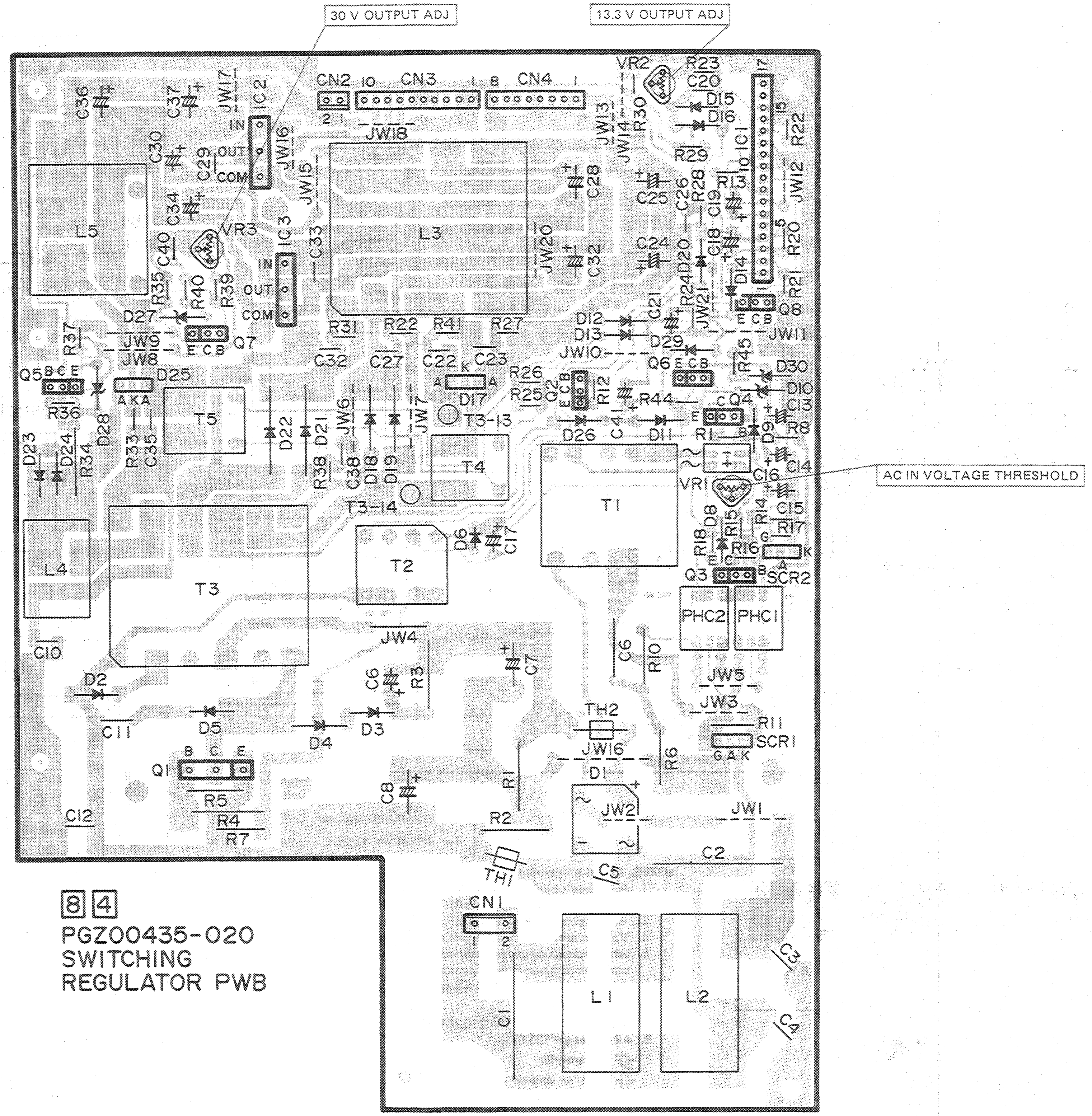
4.23 SWITCHING REGULATOR SCHEMATIC DIAGRAM


TO POWER SW (S1001)
CN4
SW1-1
SW2-1
SW1-2
SW2-2
RED
BLUE
ORANGE
F1 T4A 250V
BLACK
CN3 AC INLET
GREEN
WHITE
L
G
N
AC IN 220~240V 50/60Hz
CN5 (CN1)
AC 220V
C1 0.47
L1 10mH
L2 10mH
C3 2200P
C2 0.47
S4V B60
D1
TH2
C7 820/250
280
R1 100K 1W
R2 100K 1W
R3 100K 1W
C9 1/400
278
D3 D4 EG01C x2
C5 2200P
TH1
C8 820/250
SCR1 BCR6AM
C4 2200P
R11 1/4W 330
R9 100 1/2W
C6 0.1
R10 1/2W 100
R4 8.2 1W
D5 EG01C
R6 330 3W
C11 470P
C12 2200P
R5 39 1/2W
R7 100 1/4W
Q1 2SC3262
GND
K1
T1 TO-1132
R43 22K
C43 0.01
PHC1 TLP741J
PHC2 TLP741J
R42 22K
C42 0.01
D6 F1-06
D7 S1YB20
30.6
R8 820 1/4W
2SD882S Q4
T2 TO-4408
Q2 2SB892S
R12 220
R13 820
R14 4.7K
D8 HZ7A1
R15 5.6K
VR1 5K
R16 10K
R17 10K
R18 10K
C15 0.01
SCR2 CR02AM4
R19 10K
C16 100/50
C14 10/16
D9 HZ12B1
C13 47/25
AC IN VOLTAGE THRESHOLD
Q3 2SA1318S
T3 296 TO-4414
D2 RU-2B
L4 1KHZ/3mH
D25 CTG24S
K2
D24
K3
F1-06x2
D23
R33 .5 1/2W
C35 0.001
FR
L5 1mH
D28 HZ6B3
Q5 2SA 1009L
C36 1000/50
C37 1000/50
R36 3.3K
R35 10K
VR3 5K
+30V ADJ
R37 3.3K 1/4W
R39 12K
C40 0.1
D27 HZ7A1
Q7 2SC3331S
R40 4.7K
R34 820 1W
C10 0.1
T5 TO-702C
D21 K4
RK44 x2
C31 0.01
D22
K5
L3 3/3 75μH
C32 3300/10
R32 8.2
IC3 SI-3522V
C33 0.1
C34 470/10
R38 15 1/2W
C38 0.0033
K6
D18 D19 S2LA20 x2
D26 F1-06
K7
C27 0.0033
R31 15
L3 2/3 300μH
C28 2200/25
IC2 SI-3122V
C29 0.1
C30 100/25
D20 DS446
C22 0.0033
R41 15 1/2W
K8
D17 D8LCA20
D11 F1-06
K9
C23 0.0033
R27 15 1/2W
L3 1/3 300μH
C24 2200/25
C25 2200/25
C26 0.001
R28 8.2K
R29 220
R30 3.3K
CN1 (CN3)
+30V
+30V
NC
+30VG
+30VG
+30VG
+5.2V
+5.2VG
-12V
-12VG
TO 0 6 -CN1
FUSE
CN6 (CN2)
MF-0601M
FAN
CN2 (CN4)
+13.3V
+13.3V
NC
+13.3VG
+13.3VG
NC
+OUT
OUT G
TO 2 5 -CN1
2ND REG
D29 DSF10B
Q6 2SD882S
D16 DSF10B
T4 TO-7020
R44 4.7K
C41 220/35
D10 HZ12B1
R26 270
R25 330
D12 DS442x2 D13
R24 10K
C21 1/50
Q8 2SA1318S
IC1 TM-016
C20 0.047
+13.3V ADJ
VR2 5K
R23 8.2K
D15 HZ16-2
R45 1K
C17 47/25
D30 HZ7B1
C18 100/10
R20 8.2K
R21 10K
R22 22K
C19 1/50
D14 DS442
8 4 SW REG

NOTES: Unless otherwise specified;

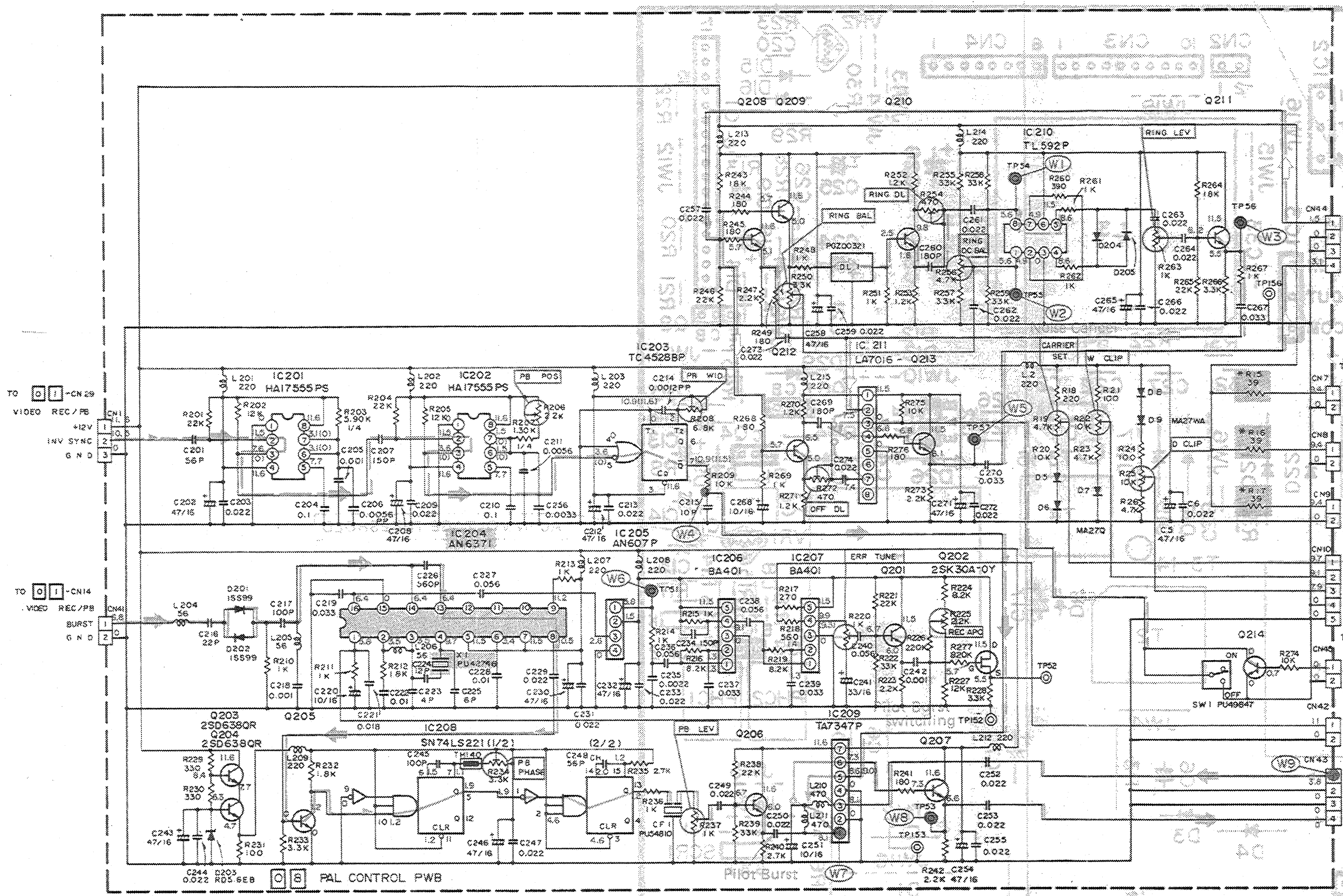
1. All resistance values are in ohms. (1/6W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during E-E mode.
5. Shaded ( ) parts are critical for safety. Replace only with specified part numbers.

4.24 SWITCHING REGULATOR CIRCUIT BOARD (TOP VIEW)


30 V OUTPUT ADJ
13.3 V OUTPUT ADJ
AC IN VOLTAGE THRESHOLD
84
PGZ00435-020
SWITCHING
REGULATOR PWB
CN1
CN2
CN3
CN4
IC1
IC2
IC3
L1
L2
L3
L4
L5
T1
T2
T3
T4
T5
T3-13
T3-14
VR1
VR2
VR3
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
SCR1
SCR2
PHC1
PHC2
TH1
TH2
D1
JW1
JW2
C2
C5
C1
C3
C4

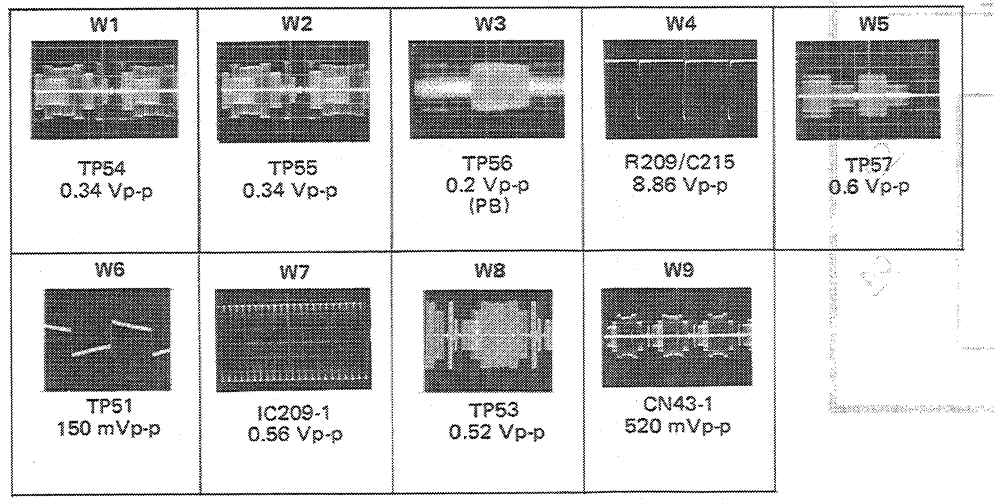
6
5
4
3
2
1
A
B
C
4-23
4-23
E
F
G
H

4.25 PAL CTL SCHEMATIC DIAGRAM


TO 0 1 -CN29 VIDEO REC/PB
+12V
INV SYNC
GND
IC201 HA17555PS
IC202 HA17555PS
IC203 TC4528BP
IC204 AN6371
IC205 AN607P
IC206 BA401
IC207 BA401
IC208
IC209 TA7347P
IC210 TL592P
IC211 LA7016
Q201
Q202 2SK30A-GY
Q203 2SD638QR
Q204 2SD638QR
Q205
Q206
Q207
Q208
Q209
Q210
Q211
Q212
Q213
Q214
SN74LS221 (1/2)
TO 0 1 -CN14 VIDEO REC/PB BURST GND
PB POS
PB WID
RING BAL
RING DL
RING LEV
RING DC BAL
ERR TUNE
REC APC
PB LEV
PB PHASE
OFF DL
CARRIER SET
W CLIP
D CLIP
MA27WA
MA27Q
SW1 PU49847
TO 0 2 -CN51 Y/C OUT
PB ACC COLOUR
GND
GND
PB CONV COLOUR
TO AUDIO 1 METER LAMP
LAMP A
GND
TO AUDIO 2 METER LAMP
LAMP B
GND
TO V/T METER LAMP
LAMP C
GND
TO 0 1 -CN31 VIDEO REC/PB
CARRIER SET
W CLIP
D CLIP
GND
GND
TO 0 2 -CN52 Y/C OUT
H: NC OFF
GND
TO 0 4 -CN2 COLOUR FRAME
EE+135° BURST
GND
TO 0 1 -CN30 VIDEO REC/PB
ACC COLOUR
GND
GND
CONV COLOUR
0 8 PAL CONTROL PWB
W1
W2
W3
W4
W5
W6
W7
W8
W9
TP51
TP52
TP53
TP54
TP55
TP56
TP57
TP152
TP153
TP156
CN41
CN42
CN43
CN44
CN7
CN8
CN9
CN10

RECORDING SIGNAL PATH
PLAYBACK SIGNAL PATH
REC PLAY SIGNAL PATH

– MAIN WAVEFORMS OF PAL CONTROL CIRCUIT –



NOTES: Unless otherwise specified;

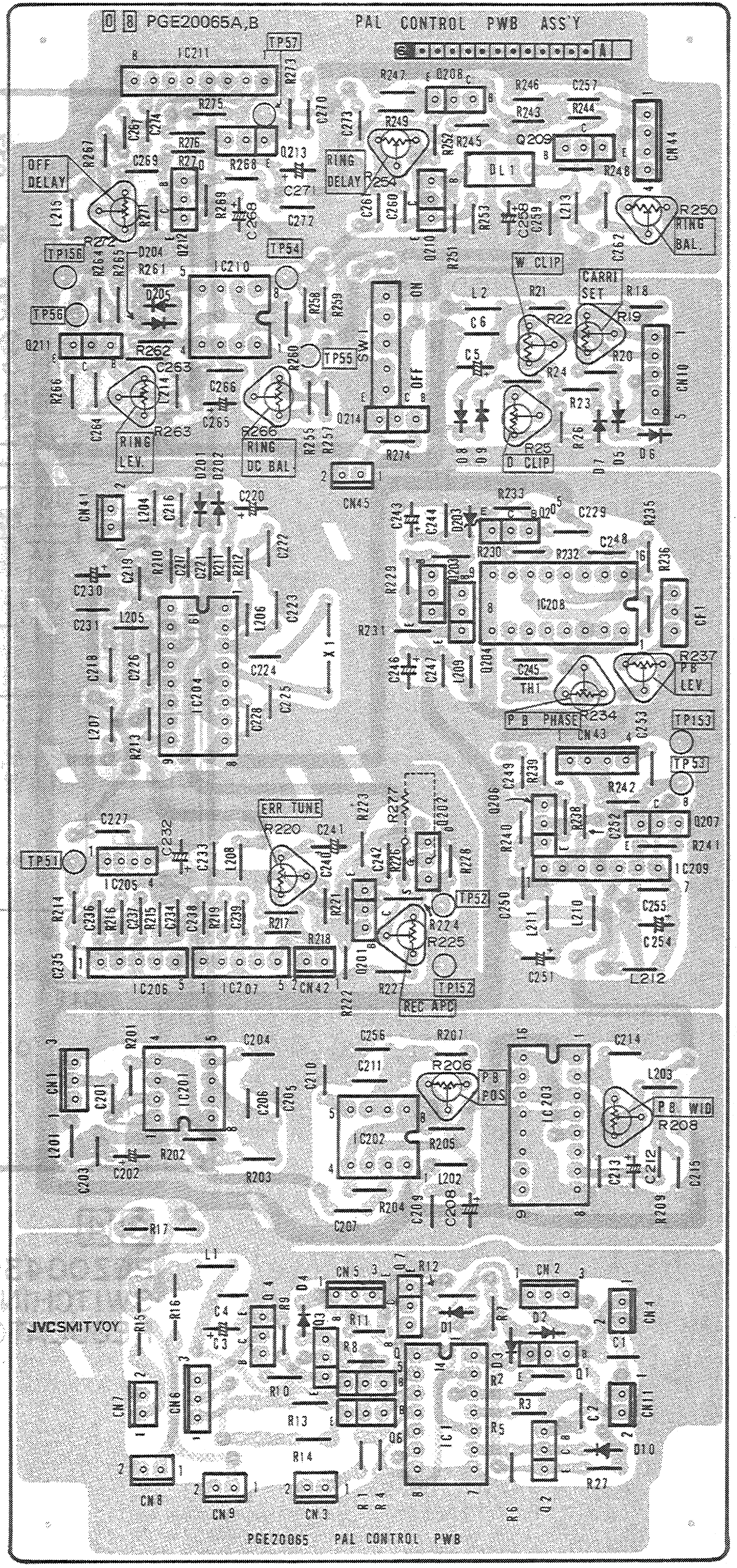
1. All resistance values are in ohms. (1/6W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.
6. Shaded (▨) parts are critical for safety. Replace only with specified part numbers.
7. NPN type transistors are 2SC2647C.
8. All diodes are 1SS133.

Electrolytic

Mylar or ceramic

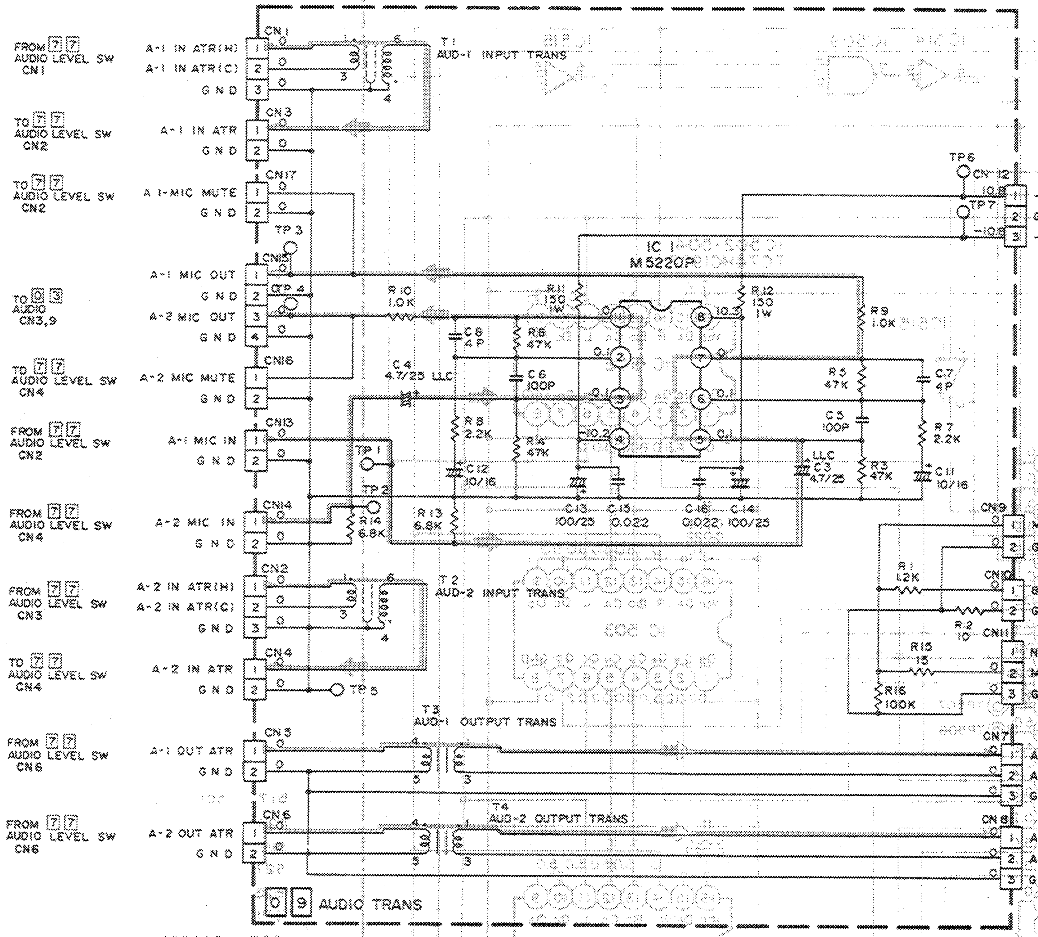
*: Fuseble resistance

4.26 PAL CTL CIRCUIT BOARD

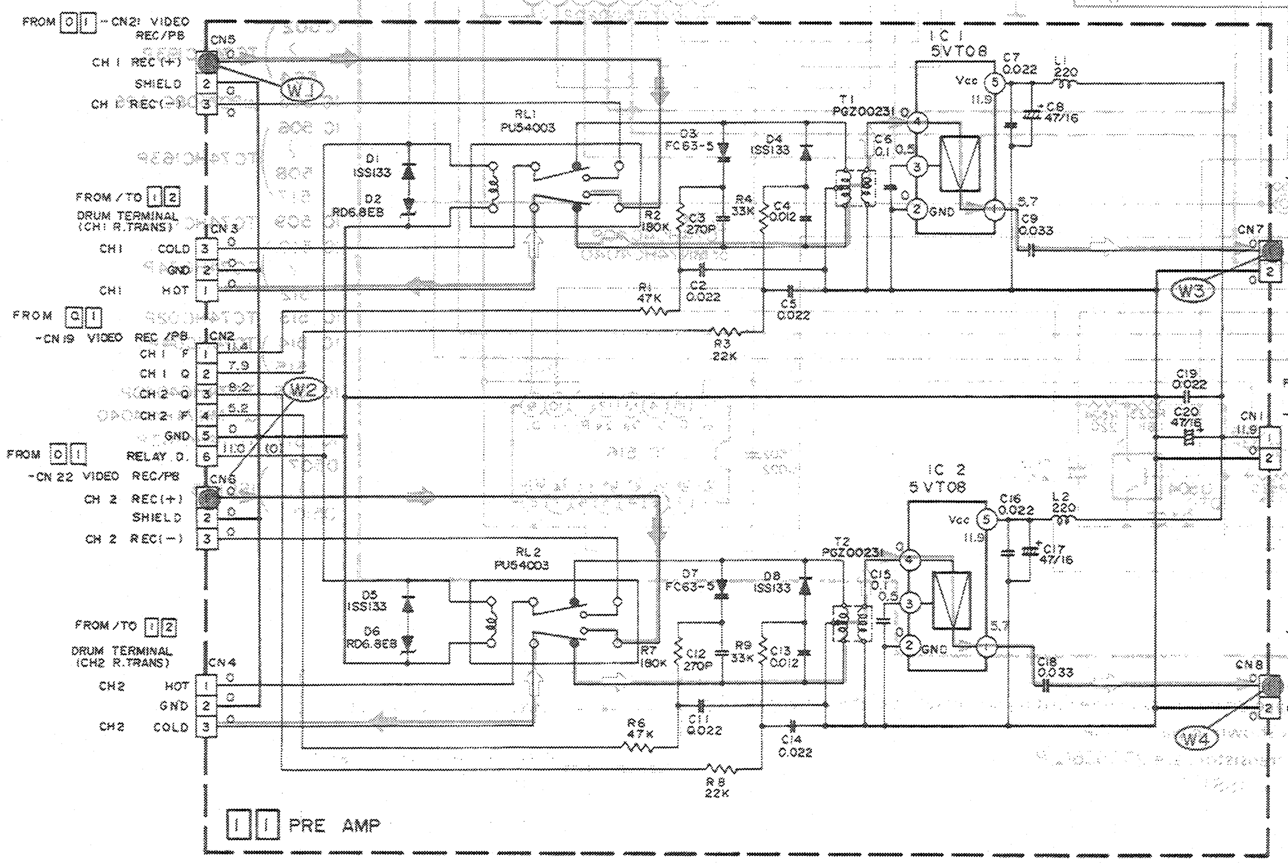

0 8 PGE20065A,B
PAL CONTROL PWB ASS'Y
OFF DELAY
RING DELAY
RING BAL
W CLIP
CARRI SET
RING LEV.
RING DC BAL
D CLIP
P B PHASE
PB LEV.
ERR TUNE
REC APC
PB POS
PB WID
IC201
IC202
IC203
IC204
IC205
IC206
IC207
IC208
IC209
IC210
IC211
SW1
ON
OFF
JVCSMITVOY
PGE20065 PAL CONTROL PWB

4.27 AUDIO TRANSFORMER & PRE AMP SCHEMATIC DIAGRAMS

— AUDIO TRANSFORMER —

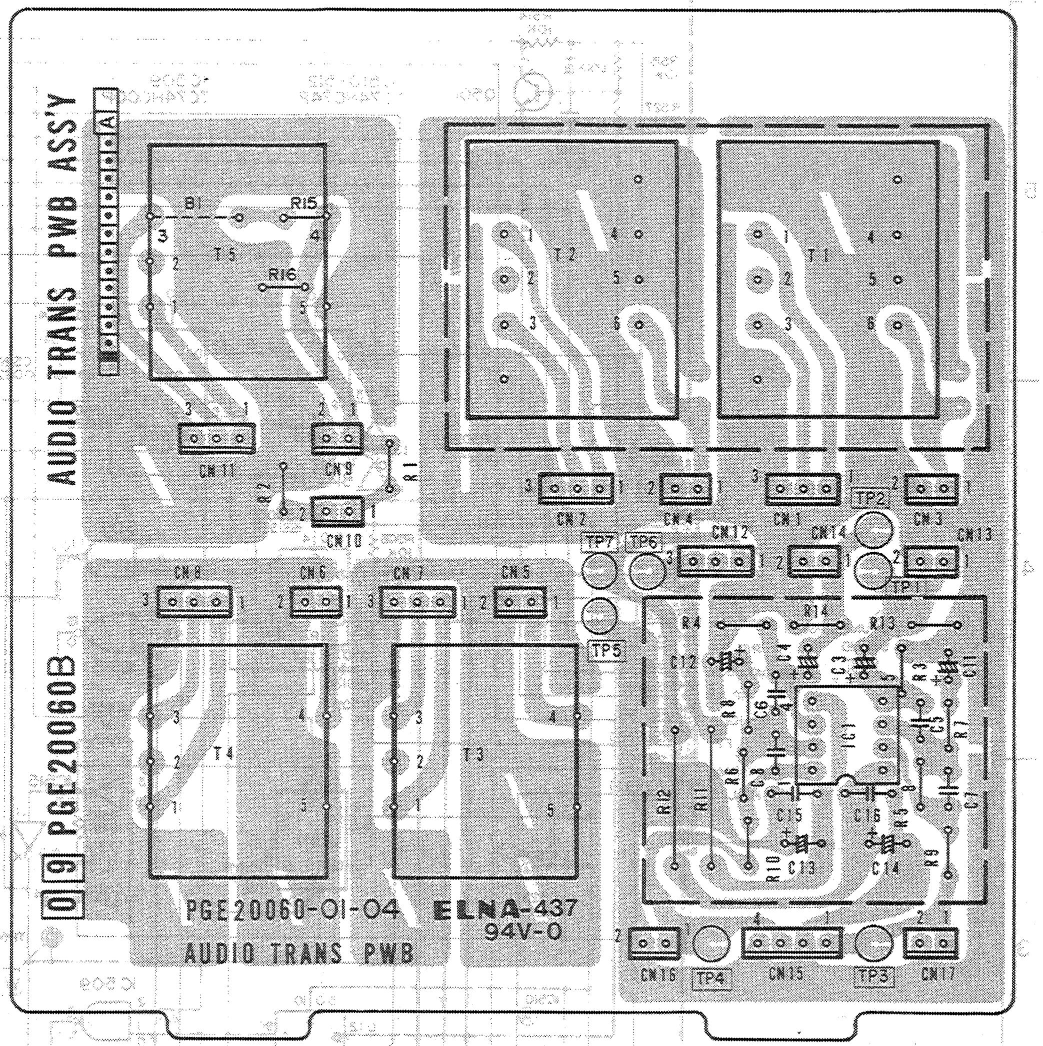

T1 AUD-1 INPUT TRANS
T2 AUD-2 INPUT TRANS
T3 AUD-1 OUTPUT TRANS
T4 AUD-2 OUTPUT TRANS
IC 1 M5220P
FROM 0 3 AUDIO CN21
TO J1004 8PIN
TO 0 8 RCA MONI OUT J1016
TO J1014 AUDIO-1 OUT XLR
TO J1015 AUDIO-2 OUT XLR
FROM AUDIO CN16
0 9 AUDIO TRANS

— PRE AMP —


IC 1 5VT08
IC 2 5VT08
RL1 PU54003
RL2 PU54003
T1 PGZ00231
T2 PGZ00231
W1
W2
W3
W4
1 1 PRE AMP

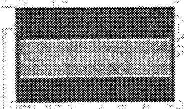
4.28 AUDIO TRANSFORMER & PRE AMP CIRCUIT BOARDS

— AUDIO TRANSFORMER —


AUDIO TRANS PWB ASS'Y
0 9 PGE20060B
PGE20060-01-04
ELNA-437 94V-0
AUDIO TRANS PWB

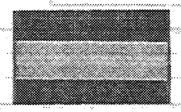
— MAIN WAVEFORMS OF PRE AMP CIRCUIT —

W1



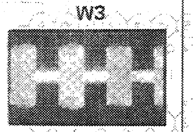
CN5-①
1.8 Vp-p
(REC)

W2



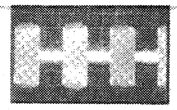
CN6-①
1.8 Vp-p
(REC)

W3



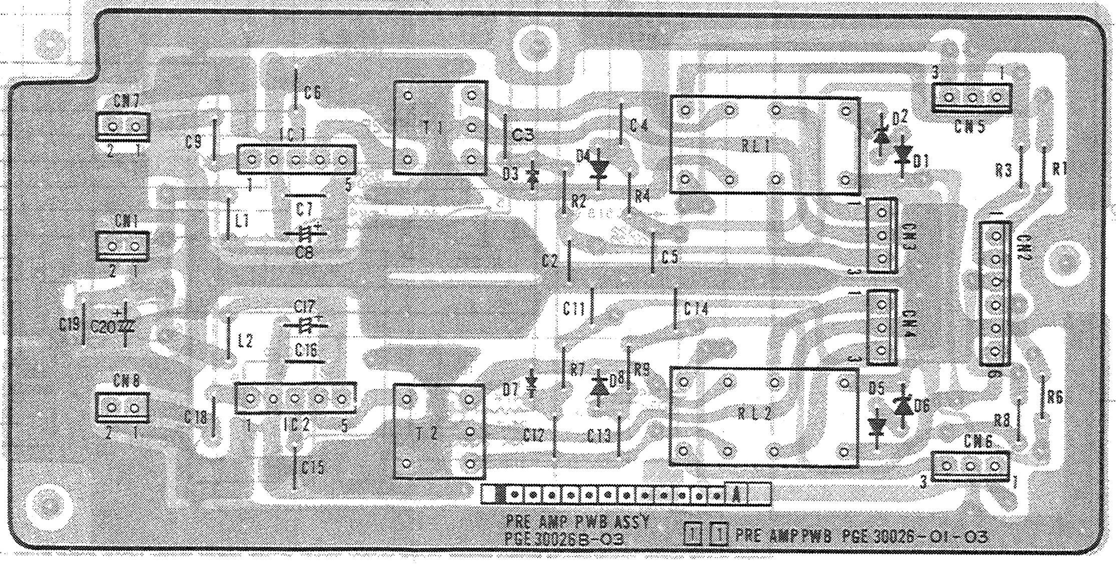
CN7-①
0.2 Vp-p
25 Hz
(PB)

W4



CN8-①
0.2 Vp-p
25 Hz
(PB)

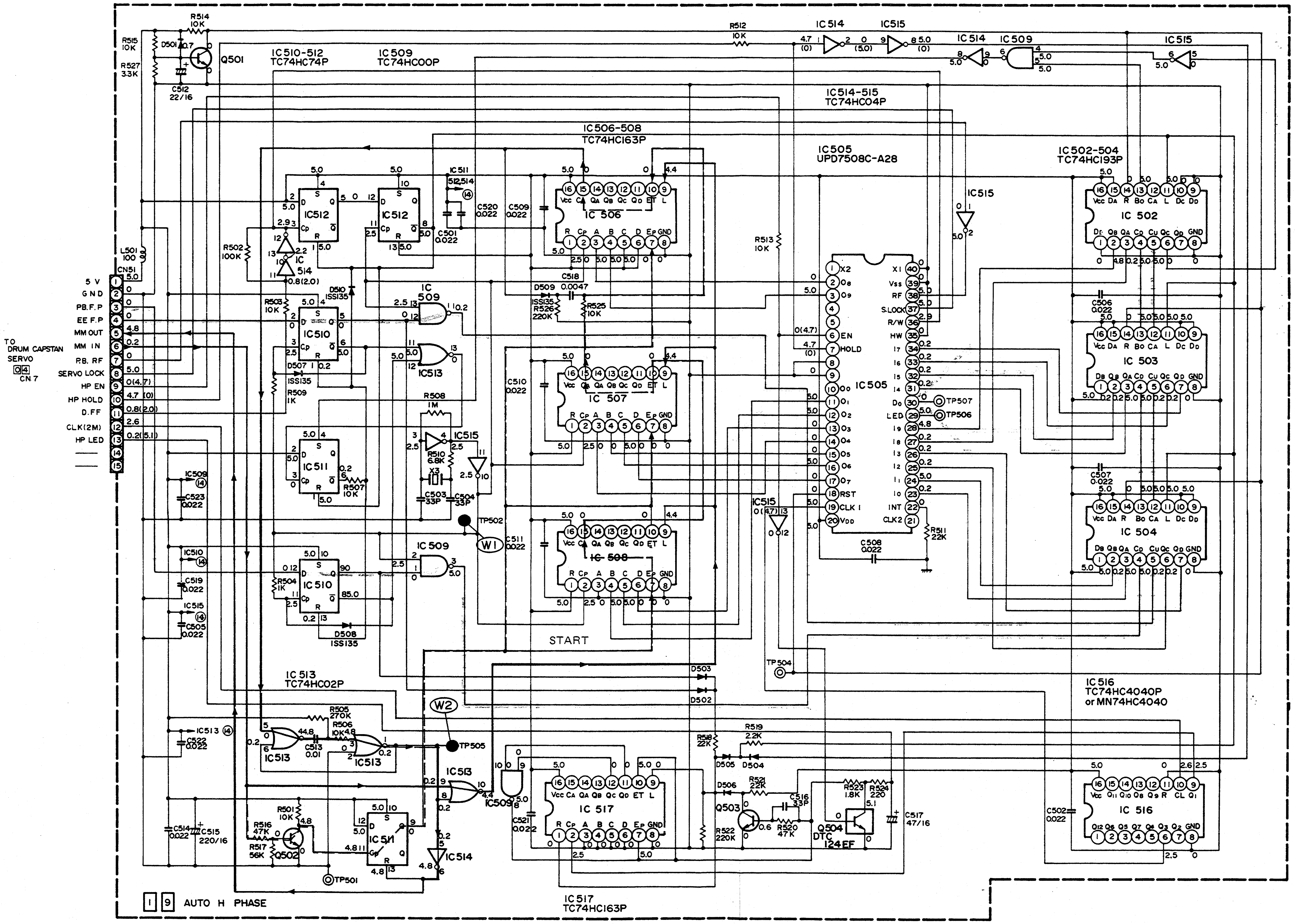
— PRE AMP —


PRE AMP PWB ASS'Y
PGE30026B-03
1 1 PRE AMP PWB PGE30026-01-03

NOTES: Unless otherwise specified;

1. All resistance values are in ohms. (1/6W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.

4.29 AUTO H PHASE SCHEMATIC DIAGRAM


TO DRUM CAPSTAN SERVO
CN 7
CN51
5 V
GND
PB.F.P
EE F.P
MM OUT
MM IN
PB. RF
SERVO LOCK
HP EN
HP HOLD
D.FF
CLK(2M)
HP LED
Q501
R514 10K
R515 10K
R527 3.3K
D501
C512 22/16
L501 100
IC510-512 TC74HC74P
IC509 TC74HC00P
IC514 IC515
IC514-515 TC74HC04P
IC506-508 TC74HC163P
IC505 UPD7508C-A28
IC502-504 TC74HC193P
IC 502
IC 503
IC 504
IC 506
IC 507
IC 508
IC512
IC510
IC511
IC513
IC 517
IC 516
IC516 TC74HC4040P or MN74HC4040
IC 513 TC74HC02P
IC517 TC74HC163P
R512 10K
R513 10K
R502 100K
R503 10K
R509 1K
R508 1M
R510 6.8K
R507 10K
R504 1K
R511 22K
R505 270K
R506 10K
R501 10K
R516 47K
R517 56K
R518 22K
R519 2.2K
R521 22K
R522 220K
R523 1.8K
R524 220
R520 47K
R525 10K
R526 220K
X3
C503 33P
C504 33P
C506 0.022
C507 0.022
C508 0.022
C509 0.022
C510 0.022
C511 0.022
C513 0.01
C514 0.022
C515 220/16
C516 33P
C517 47/16
C518 0.0047
C519 0.022
C520 0.022
C521 0.022
C522 0.022
C523 0.022
C501 0.022
C502 0.022
C505 0.022
D502
D503
D504
D505
D506
D507 1SS135
D508 1SS135
D509 1SS135
D510 1SS135
Q502
Q503
Q504 DTC124EF
TP501
TP502
TP504
TP505
TP506
TP507
W1
W2
START
1 9 AUTO H PHASE

517 501
504
510
527
523
501
507 502,503

IC502 ~ 504	TC74HC193P
IC 505	μPD7508C-A28
IC 506 ~ 508, 517	TC74HC163P
IC 509	TC74HC00P
IC 510 ~ 512	TC74HC74P
IC 513	TC74HC02P
IC 514, 515	TC74HC04P
IC 516	TC74HC4040P or MN74HC4040
IC 517	TC74HC163P
D507 ~ D510	ISS135

NOTES: Unless otherwise specified;

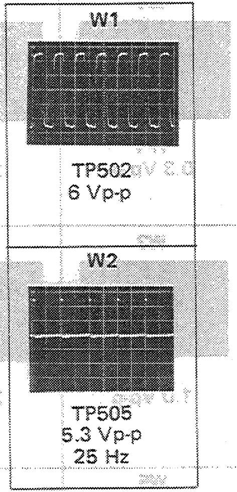
1. All resistance values are in ohms. (1/6W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.
6. NPN type transistors are 2SD636Q,R.
7. All diodes are 1SS133.

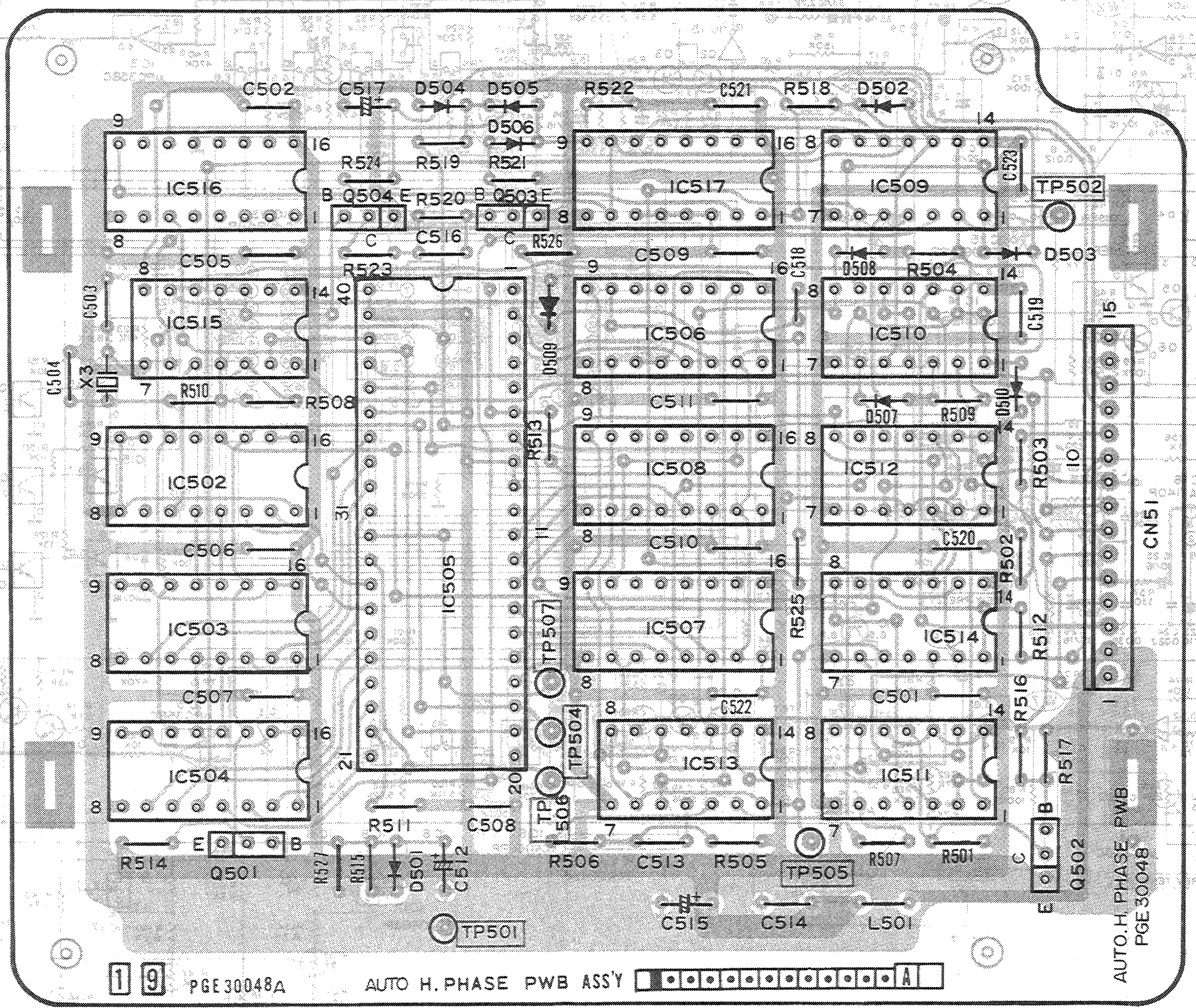
——►—— MAIN SIGNAL PATH

▬ ▬►▬ ▬ PHASE ERROR DETECT SIGNAL PATH

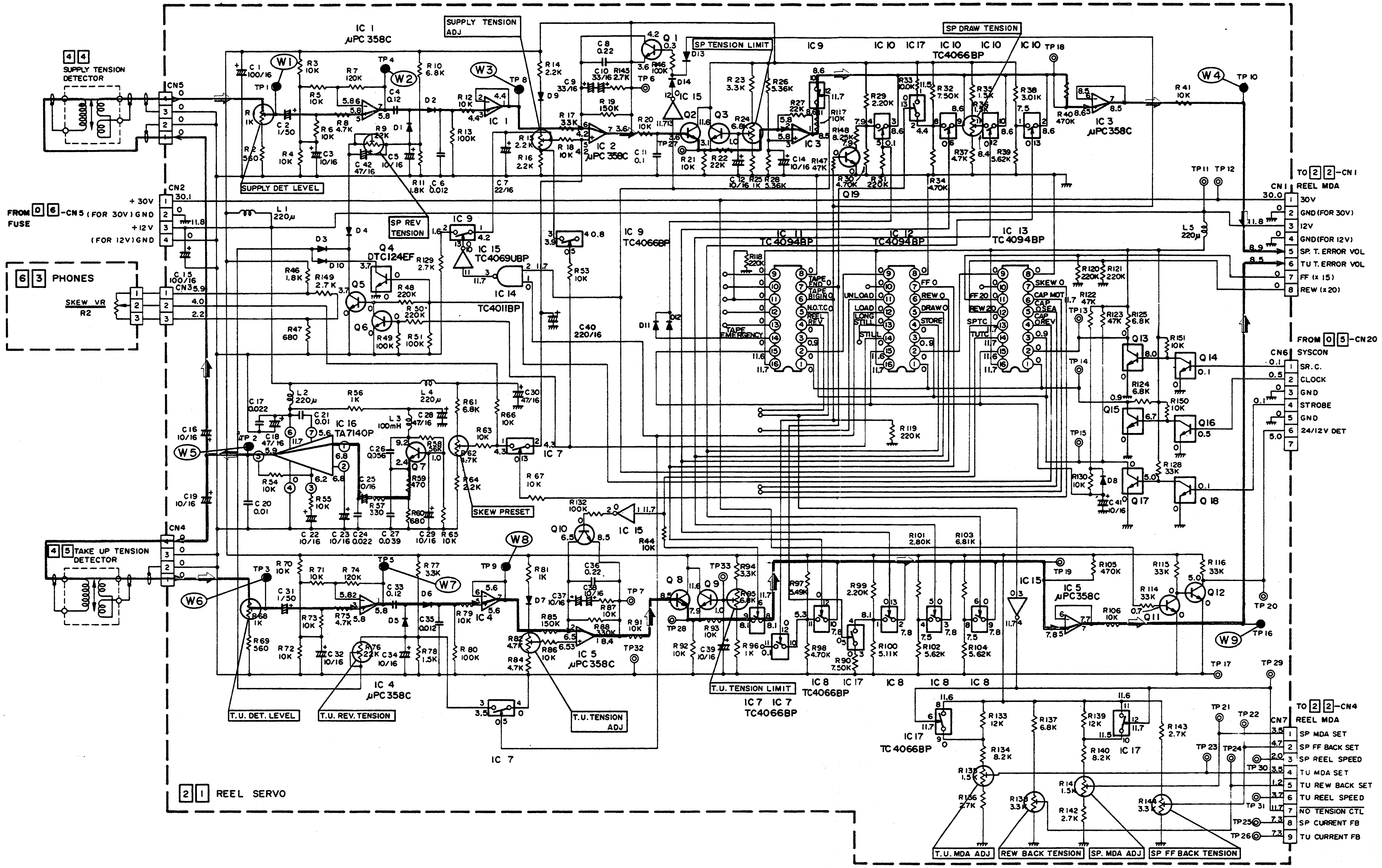
4.30 AUTO H PHASE CIRCUIT BOARD

– MAIN WAVEFORMS OF AUTO H PHASE CIRCUIT –

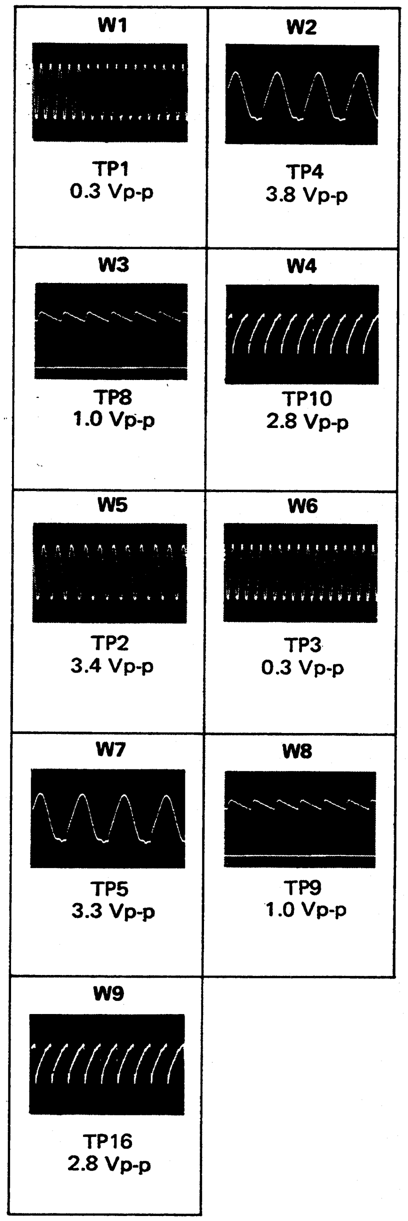



IC516
IC515
IC502
IC503
IC504
IC505
IC517
IC509
IC506
IC510
IC508
IC512
IC507
IC514
IC513
IC511
C502
C517
D504
D505
D506
R522
C521
R518
D502
R524
R519
R521
Q504
R520
Q503
TP502
C516
R526
C505
C509
C518
D508
R504
D503
C503
R523
D509
C519
C504
X3
R510
R508
C511
D507
R509
D510
R513
R503
CN51
C506
C510
C520
R502
R525
TP507
R512
C507
C501
R516
C522
TP504
R517
TP506
R511
C508
R514
Q501
R527
R515
D501
C512
R506
C513
R505
TP505
R507
R501
Q502
C515
C514
L501
TP501
AUTO H. PHASE PWB ASS'Y
PGE30048A
AUTO. H. PHASE PWB
PGE30048

4.31 REEL SERVO SCHEMATIC DIAGRAM


4 4 SUPPLY TENSION DETECTOR
FROM 0 6 -CN5 (FOR 30V) GND FUSE
+30V
+12V
(FOR 12V) GND
6 3 PHONES
SKEW VR R2
4 5 TAKE UP TENSION DETECTOR
CN5
CN2
CN3
CN4
IC 1 μPC 358C
SUPPLY TENSION ADJ
SP TENSION LIMIT
SP DRAW TENSION
IC 9
IC 10
IC 17
IC 10 TC4066BP
IC 3 μPC358C
IC 2 μPC 358C
IC 15
SUPPLY DET LEVEL
SP REV TENSION
Q4 DTC124EF
IC 15 TC4069UBP
IC 14 TC4011BP
IC 9 TC4066BP
IC 11 TC4094BP
IC 12 TC4094BP
IC 13 TC4094BP
IC 16 TA7140P
IC 7
SKEW PRESET
W1
W2
W3
W4
W5
W6
W7
W8
W9
IC 4 μPC358C
IC 5 μPC 358C
IC 5 μPC358C
T.U. DET. LEVEL
T.U. REV. TENSION
T.U. TENSION ADJ
T.U. TENSION LIMIT
IC 7 IC 7 TC4066BP
IC 8 IC 17 TC4066BP
IC 17 TC 4066BP
T.U. MDA ADJ
REW BACK TENSION
SP. MDA ADJ
SP FF BACK TENSION
2 1 REEL SERVO
TO 2 2 -CN1 REEL MDA
CN1
1 30V
2 GND (FOR 30V)
3 12V
4 GND (FOR 12V)
5 SP. T. ERROR VOL
6 TU T. ERROR VOL
7 FF (x 15)
8 REW (x 20)
FROM 0 5 -CN20 SYSCON
CN6
1 SR. C.
2 CLOCK
3 GND
4 STROBE
5 GND
6 24/12V DET
7
TO 2 2 -CN4 REEL MDA
CN7
1 SP MDA SET
2 SP FF BACK SET
3 SP REEL SPEED
4 TU MDA SET
5 TU REW BACK SET
6 TU REEL SPEED
7 NO TENSION CTL
8 SP CURRENT FB
9 TU CURRENT FB

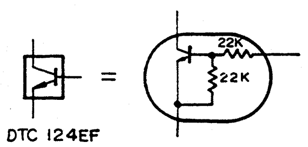
— MAIN WAVEFORMS OF REEL SERVO CIRCUIT —



➡ RECORDING SIGNAL PATH
⇨ PLAYBACK SIGNAL PATH
➡ REC PLAY SIGNAL PATH

NOTES: Unless otherwise specified;

1. All resistance values are in ohms. (1/4 W), (1/6 W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.
6. NPN type transistors are 2SD636Q,R.
7. PNP type transistors are 2SB641R,S.
8. NPN type digital transistors are DTC124EF.
9. All diodes are 1SS133.



DTC 124EF

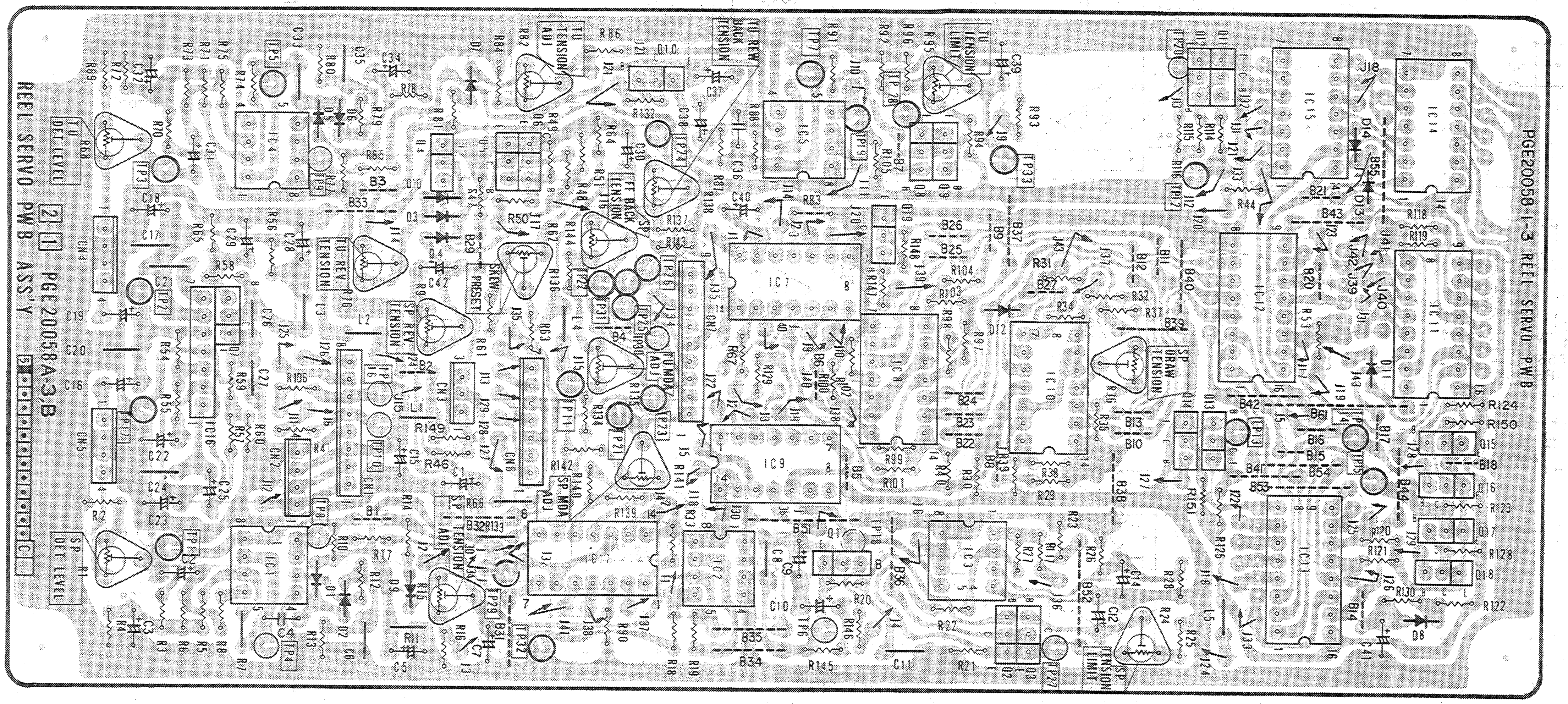
6

4.32 REEL SERVO, SUP. T. DETECTOR & TU. T. DETECTOR CIRCUIT BOARDS

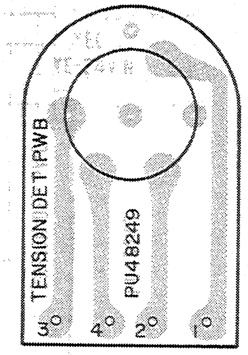
5

– REEL SERVO –

– SUP. T. DETECTOR –


REEL SERVO PWB ASS'Y
2 1 PGE20058A-3,B
PGE20058-1-3 REEL SERVO PWB
TU DET LEVEL
SP DET LEVEL
TU TENSION ADJ
TU REW BACK TENSION
TU TENSION LIMIT
TU REV TENSION
SP REV TENSION
TT BACK TENSION
SKEW
PRESET
TU MDA ADJ
SP MDA ADJ
SP TENSION ADJ
SP DRAW TENSION
SP TENSION LIMIT
IC1
IC2
IC3
IC4
IC5
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
CN1
CN2
CN3
CN4
CN5
CN6
CN7

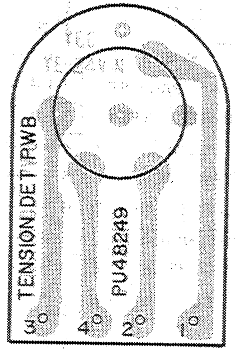
R83: BUS WIRE


TENSION DET PWB
PU48249
3
4
2
1

4 4 SUP TENSION DET PWB

4

– TU. T. DETECTOR –


TENSION DET PWB
PU48249
3
4
2
1

3

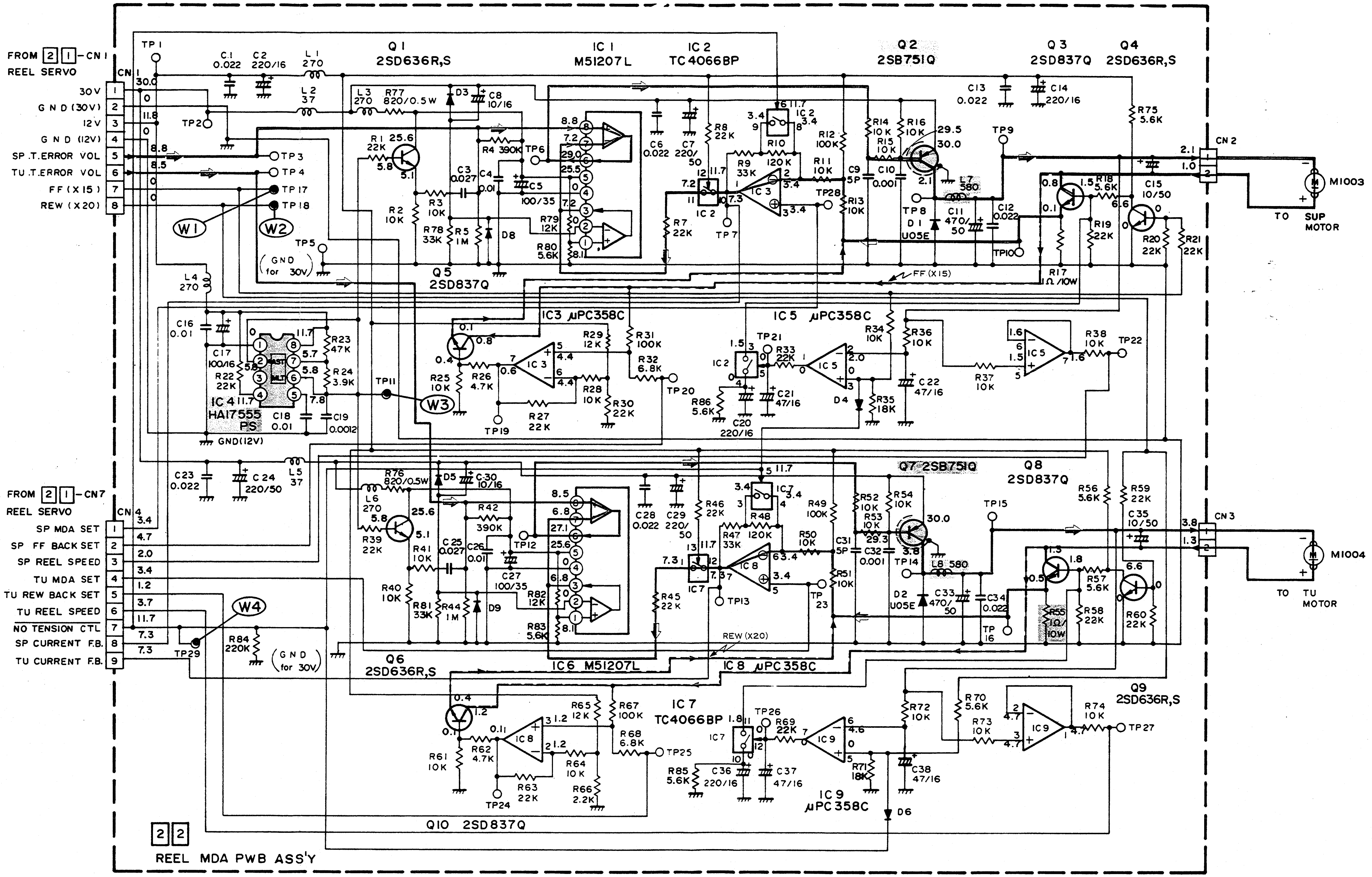
4 5 TU TENSION DET PWB

2

1

A B C D E F G H

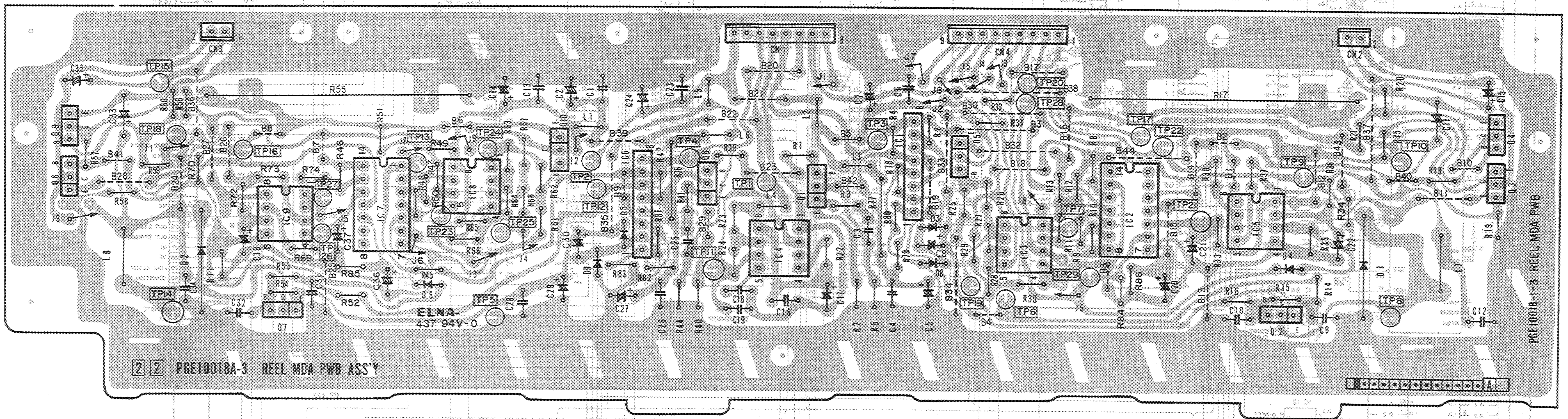
4.33 REEL MDA SCHEMATIC DIAGRAM


FROM 2 1 -CN1 REEL SERVO
CN1
30V 1
GND (30V) 2
12V 3
GND (12V) 4
SP.T.ERROR VOL 5
TU.T.ERROR VOL 6
FF (X15) 7
REW (X20) 8
FROM 2 1 -CN7 REEL SERVO
CN4
SP MDA SET 1
SP FF BACK SET 2
SP REEL SPEED 3
TU MDA SET 4
TU REW BACK SET 5
TU REEL SPEED 6
NO TENSION CTL 7
SP CURRENT F.B. 8
TU CURRENT F.B. 9
Q1 2SD636R,S
IC1 M51207L
IC2 TC4066BP
Q2 2SB751Q
Q3 2SD837Q
Q4 2SD636R,S
Q5 2SD837Q
IC3 μPC358C
IC4 HA17555PS
IC5 μPC358C
Q6 2SD636R,S
IC6 M51207L
Q7 2SB751Q
Q8 2SD837Q
IC7 TC4066BP
IC8 μPC358C
IC9 μPC358C
Q9 2SD636R,S
Q10 2SD837Q
CN2
M1003
TO SUP MOTOR
CN3
M1004
TO TU MOTOR
W1
W2
W3
W4
GND for 30V
GND (12V)
FF (X15)
REW (X20)
R17 1Ω/10W
R55 1Ω/10W
2 2
REEL MDA PWB ASS'Y

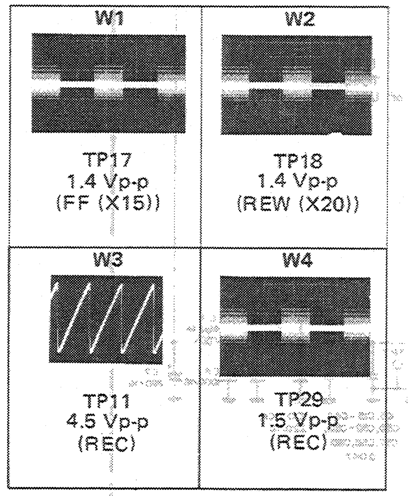
➡ RECORDING SIGNAL PATH
⇨ PLAYBACK SIGNAL PATH
⇨ RECPLAY SIGNAL PATH

NOTES: Unless otherwise specified;
1. All resistance values are in ohms. (1/6W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.
6. Shaded ( ) parts are critical for safety. Replace only with specified part numbers.
7. All diodes are 1SS133.

4.34 REEL MDA CIRCUIT BOARD


CN1
CN2
CN3
CN4
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
TP11
TP12
TP13
TP14
TP15
TP16
TP17
TP18
TP19
TP20
TP21
TP22
TP23
TP24
TP25
TP26
TP27
TP28
TP29
ELNA-
437 94V-0
2 2 PGE10018A-3 REEL MDA PWB ASS'Y
PGE10018-1-3 REEL MDA PWB

– MAIN WAVEFORMS OF REEL MDA CIRCUIT –



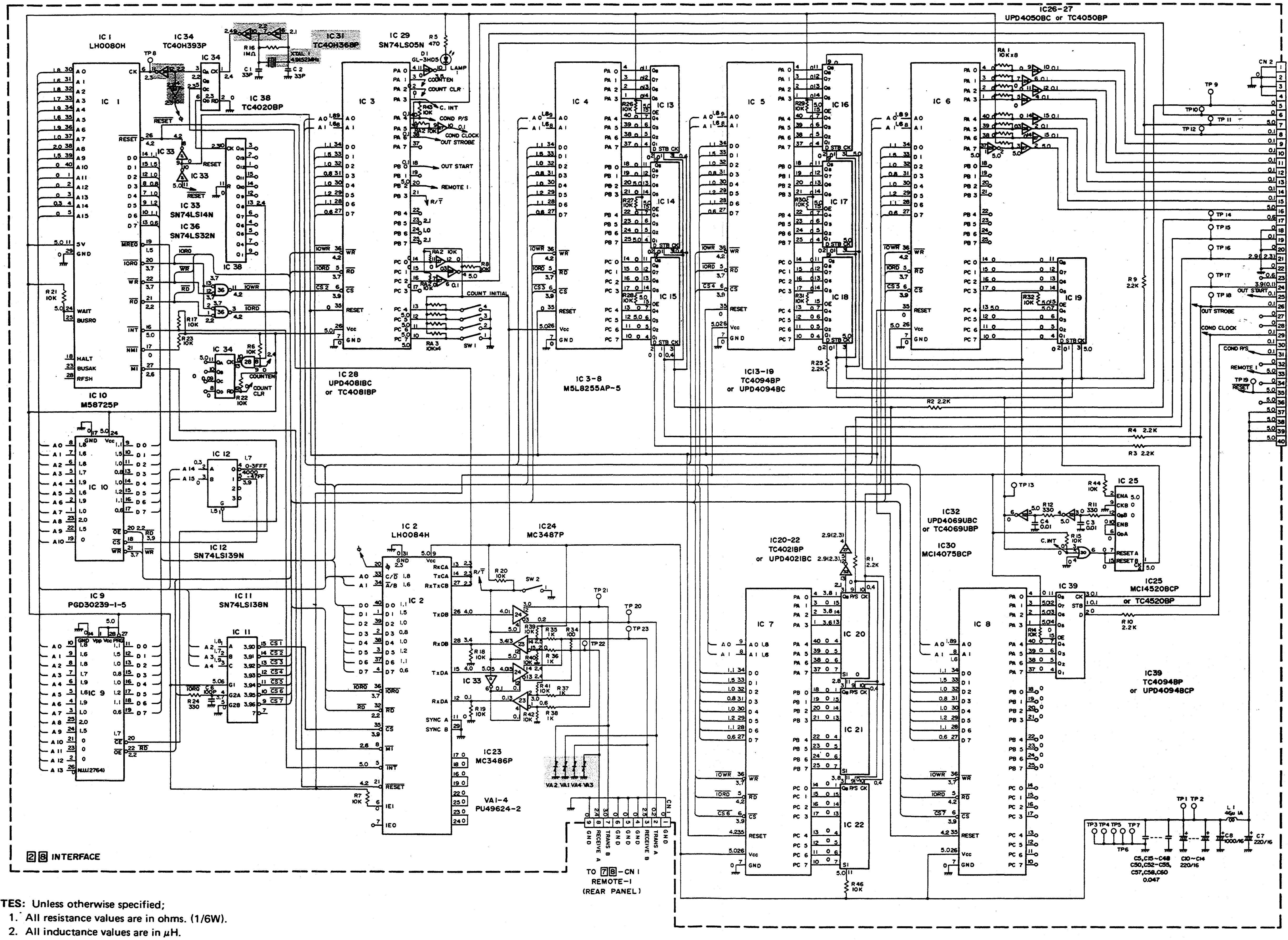
TP17
1.4 Vp-p
(FF (X15))

TP18
1.4 Vp-p
(REW (X20))

TP11
4.5 Vp-p
(REC)

TP29
1.5 Vp-p
(REC)

4.35 INTERFACE SCHEMATIC DIAGRAM



IC 1 LH0080H
IC 34 TC40H393P
IC 31 TC40H368P
IC 29 SN74LS05N
IC 38 TC4020BP
IC 33 SN74LS14N
IC 36 SN74LS32N
IC 3
IC 4
IC 5
IC 6
IC 13
IC 14
IC 15
IC 16
IC 17
IC 18
IC 19
IC26-27 UPD4050BC or TC4050BP
IC 28 UPD4081BC or TC4081BP
IC 3-8 M5L8255AP-5
IC13-19 TC4094BP or UPD4094BC
IC 10 M58725P
IC 12 SN74LS139N
IC 9 PGD30239-1-5
IC 11 SN74LS138N
IC 2 LH0084H
IC24 MC3487P
IC23 MC3486P
VA1-4 PU49624-2
IC 7
IC 8
IC 20
IC 21
IC 22
IC20-22 TC4021BP or UPD4021BC
IC32 UPD4069UBC or TC4069UBP
IC30 MC14075BCP
IC 25
IC25 MC14520BCP or TC4520BP
IC 39
IC39 TC4094BP or UPD4094BCP
XTAL 4.9152MHz
LAMP
SW 1
SW 2
COUNT INITIAL
TO 05-CN I SYSCON
CN 2
GND
SENSE DATA
PRESET DATA
SERIAL CLOCK
TRANS CMD
CODE CMD 0
CMD CLOCK
CMD P/S
SIO
S.O.2
OUT START
OUT STROBE
COND CLOCK
CONDITION I
COND P/S
REMOTE I (L)
RESET
5V
TO 78-CN I REMOTE-I (REAR PANEL)
RECEIVE A
RECEIVE B
TRANS A
TRANS B
28 INTERFACE
6
5
4
3
2
1
A
B
C
E
F
G
H

NOTES: Unless otherwise specified;

1. All resistance values are in ohms. (1/6W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.
6. Shaded ( ) parts are critical for safety. Replace only with specified part numbers.

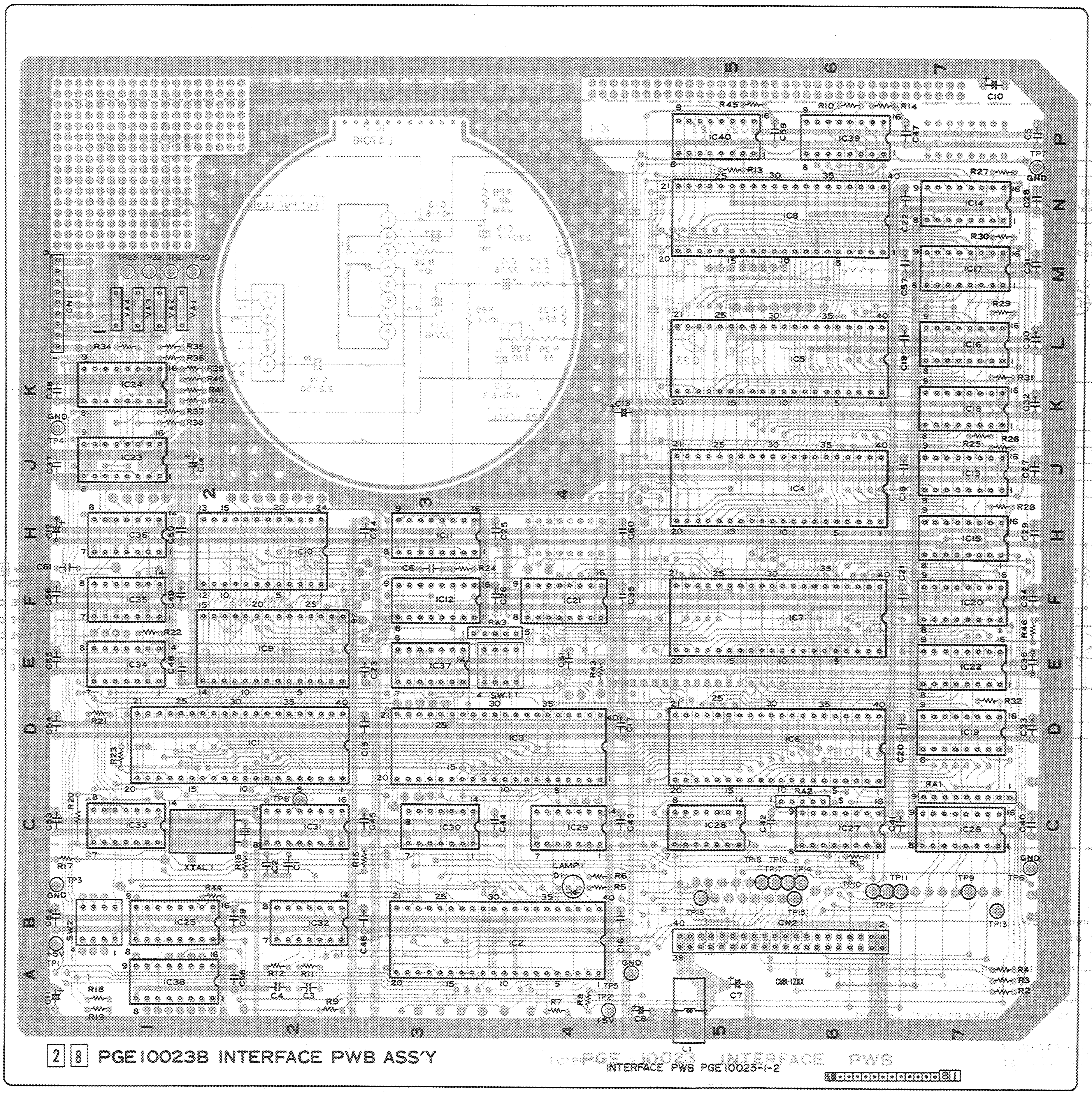
6

4.36 INTERFACE AND REMOTE 1 CONNECTOR CIRCUIT BOARDS

— INTERFACE —

5

4

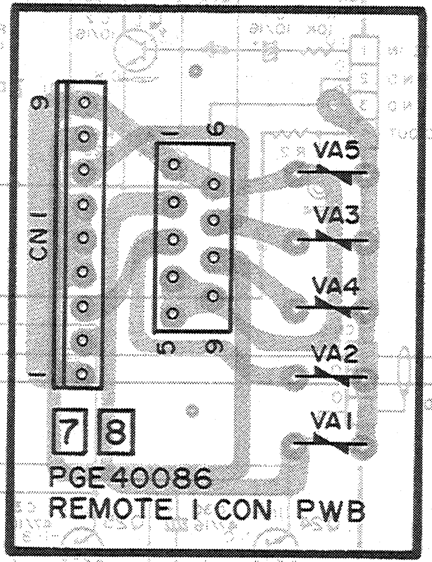

IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC21
IC22
IC23
IC24
IC25
IC26
IC27
IC28
IC29
IC30
IC31
IC32
IC33
IC34
IC35
IC36
IC37
IC38
IC39
IC40
CN1
CN2
XTAL1
LAMP1
SW1
SW2
RA1
RA2
RA3
L1
VA1
VA2
VA3
VA4
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
TP11
TP12
TP13
TP14
TP15
TP16
TP17
TP18
TP19
TP20
TP21
TP22
TP23
GND
+5V
CMK-128X
1
2
3
4
5
6
7
A
B
C
D
E
F
H
J
K
L
M
N
P
INTERFACE PWB PGE10023-1-2

2 8 PGE10023B INTERFACE PWB ASS'Y

3

2

— REMOTE 1 CONNECTOR —

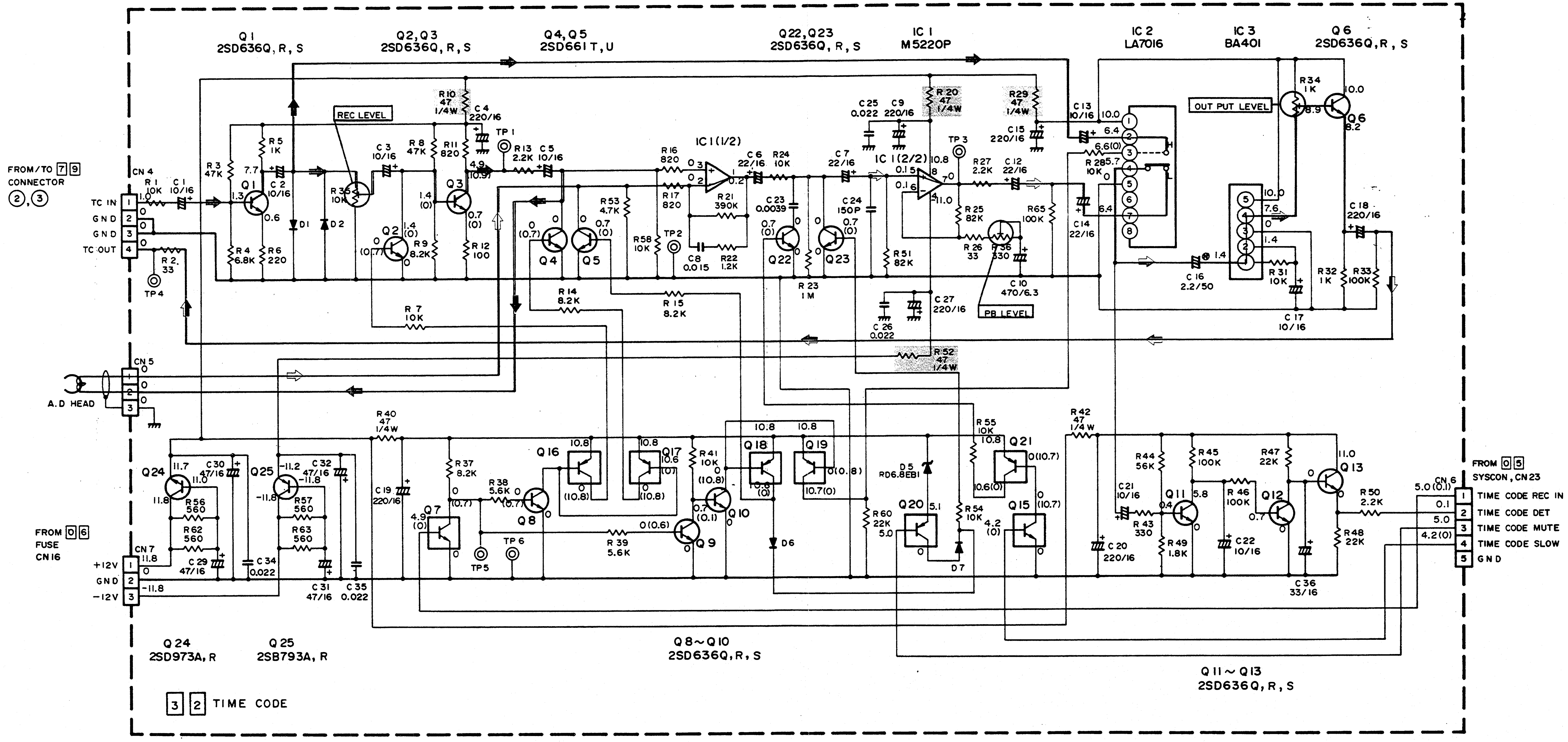

CN1
9
1
6
5
9
VA5
VA3
VA4
VA2
VA1

7 8 PGE40086
REMOTE 1 CON PWB

1

A B C 4-33 4-33 E F G H

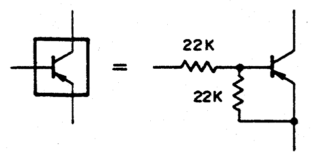
4.37 TIME CODE SCHEMATIC DIAGRAM


FROM/TO 7 9 CONNECTOR ②,③
CN 4
TC IN 1
GND 2
GND 3
TC OUT 4
TP4
CN 5
A.D HEAD
FROM 0 6 FUSE CN16
CN 7
+12V 1
GND 2
−12V 3
Q1 2SD636Q, R, S
Q2, Q3 2SD636Q, R, S
Q4, Q5 2SD661 T, U
Q22, Q23 2SD636Q, R, S
IC 1 M5220P
IC 2 LA7016
IC 3 BA401
Q6 2SD636Q, R, S
REC LEVEL
OUT PUT LEVEL
PB LEVEL
IC 1 (1/2)
IC 1 (2/2)
TP 1
TP 2
TP 3
TP 5
TP 6
R 20 47 1/4W
R 29 47 1/4W
R 52 47 1/4W
R 10 47 1/4W
R 40 47 1/4W
R 42 47 1/4W
Q 24 2SD973A, R
Q 25 2SB793A, R
Q8∼Q10 2SD636Q, R, S
Q11∼Q13 2SD636Q, R, S
3 2 TIME CODE
FROM 0 5 SYSCON, CN23
CN 6
1 TIME CODE REC IN
2 TIME CODE DET
3 TIME CODE MUTE
4 TIME CODE SLOW
5 GND
D5 RD6.8EB1
D1
D2
D6
D7

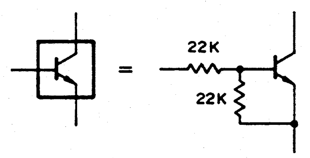
NOTES: Unless otherwise specified;

1. All resistance values are in ohms. (1/6W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.
6. Shaded ( ) parts are critical for safety. Replace only with specified part numbers.
7. NPN type digital transistors are DTC124EF.
8. PNP type digital transistors are DTA124EF.
9. All diodes are 1SS133.

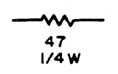
DTA 124EF



DTC124EF



QRZ0052

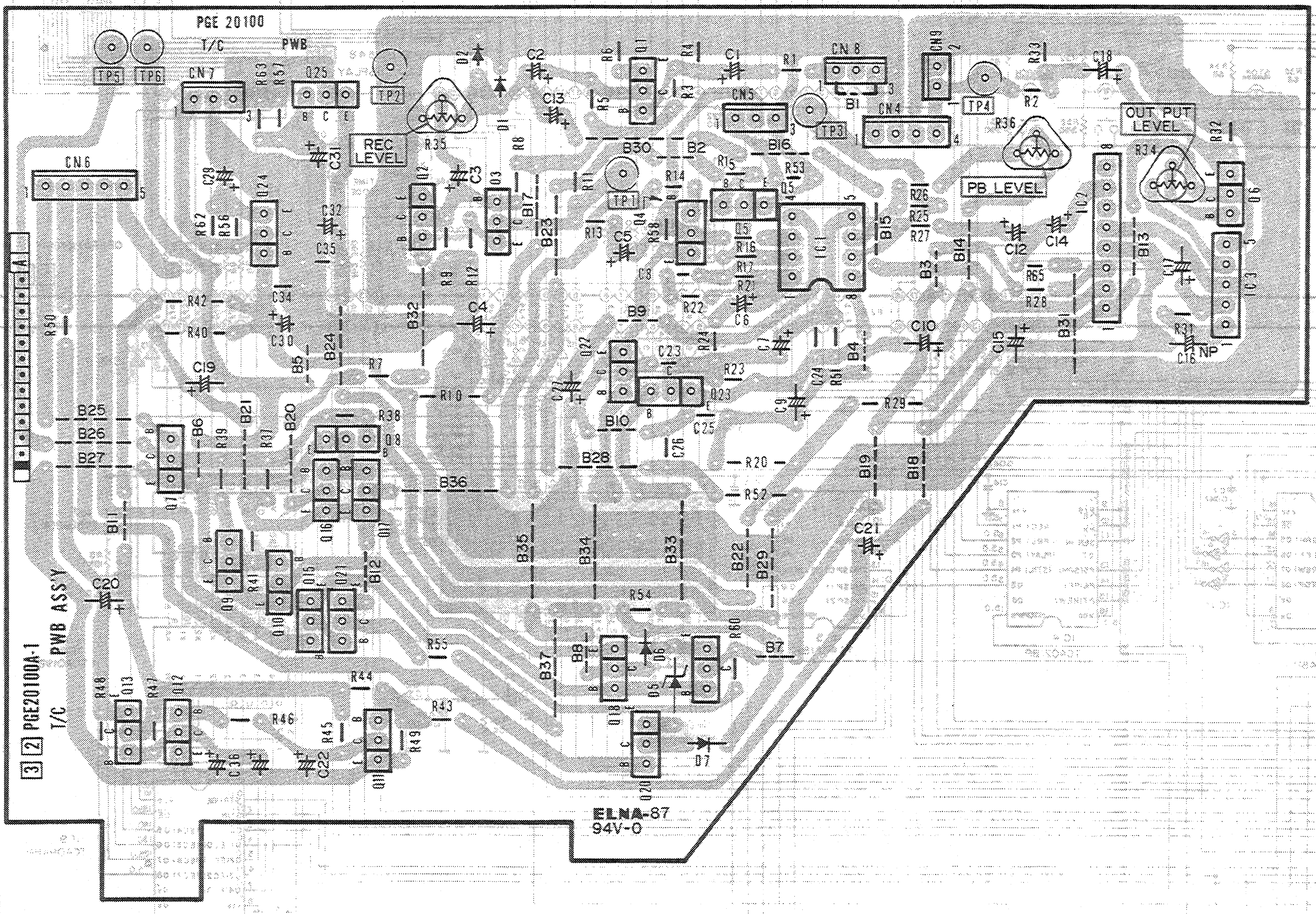


= FUSIBLE RESISTOR

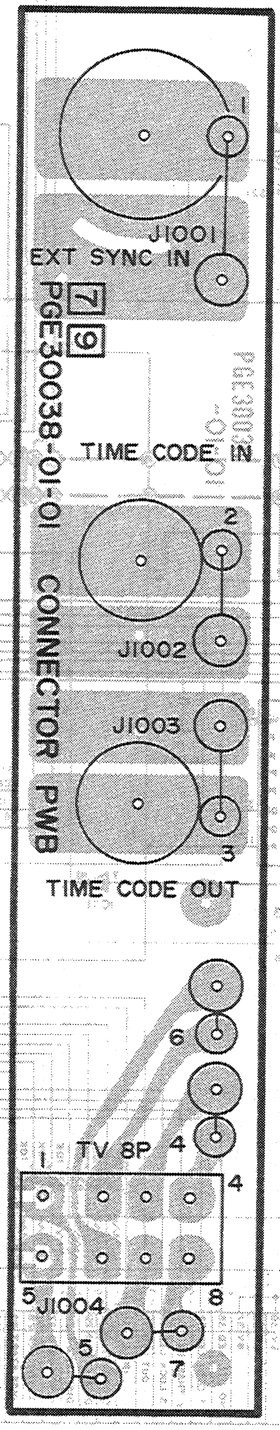
➡ RECORDING SIGNAL PATH
⇨ PLAYBACK SIGNAL PATH
⇒ REC PLAY SIGNAL PATH

4.38 TIME CODE, CONNECTOR & ADDRESS HEAD CIRCUIT BOARDS

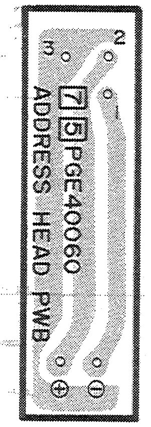
– TIME CODE –


PGE 20100
T/C
PWB
TP5
TP6
CN7
R63
R57
Q25
TP2
REC LEVEL
R35
OUT PUT LEVEL
R34
PB LEVEL
R36
CN6
CN8
CN9
CN5
CN4
TP1
TP3
TP4
IC1
IC2
IC3
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R16
R17
R20
R21
R22
R23
R24
R25
R26
R27
R28
R29
R31
R32
R33
R37
R38
R39
R40
R41
R42
R43
R44
R45
R46
R47
R48
R49
R50
R52
R53
R54
R55
R56
R58
R60
R62
R65
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C12
C13
C14
C15
C16
NP
C17
C18
C19
C20
C21
C22
C23
C24
C25
C26
C27
C28
C29
C30
C31
C32
C34
C35
C36
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
Q17
Q18
Q19
Q20
Q21
Q22
Q23
Q24
D1
D2
D5
D6
D7
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12
B13
B14
B15
B16
B17
B18
B19
B20
B21
B22
B23
B24
B25
B26
B27
B28
B29
B30
B31
B32
B33
B34
B35
B36
B37
3 2 PGE20100A-1
T/C
PWB ASS'Y
ELNA-87
94V-0

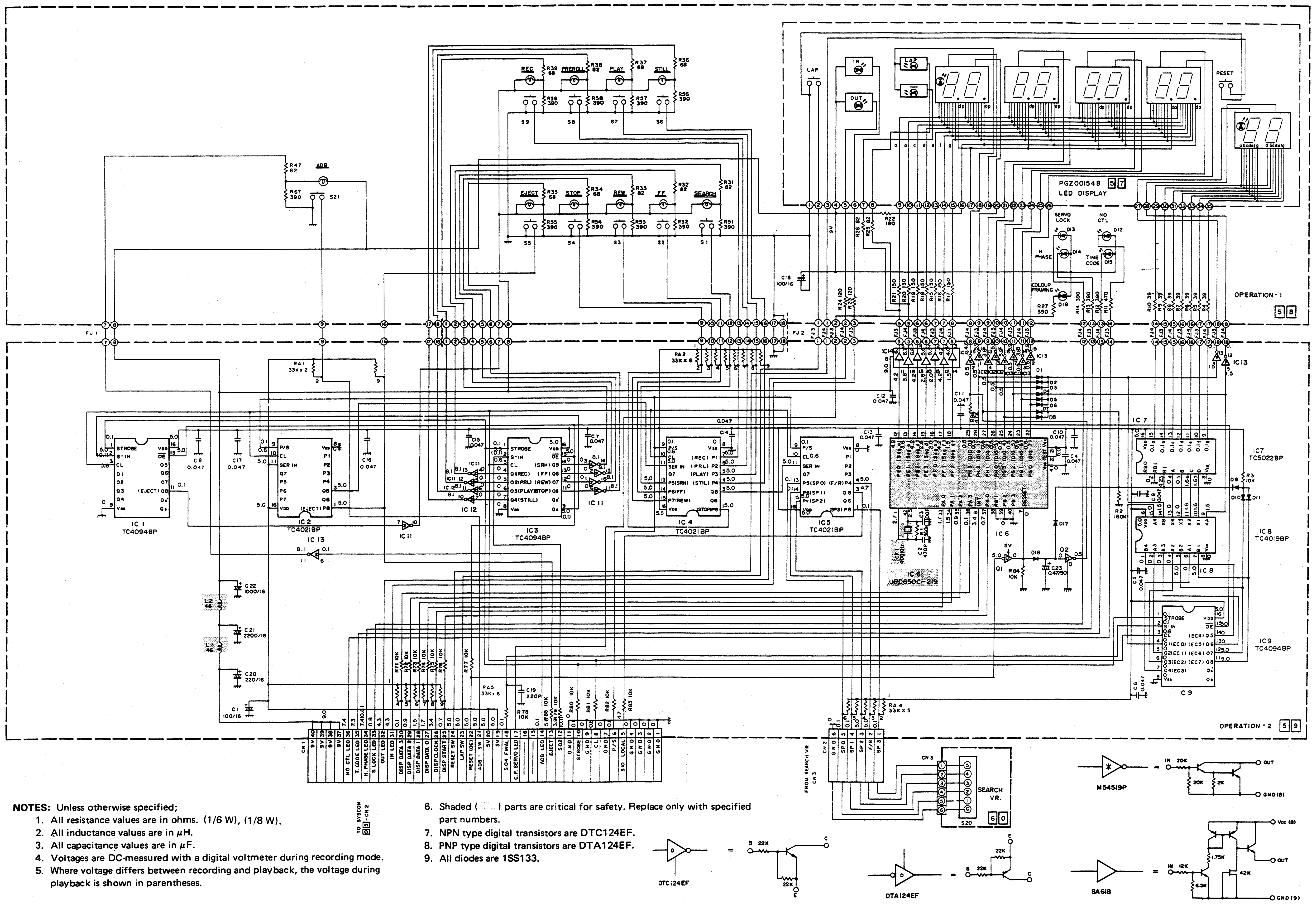
– CONNECTOR –


1
J1001
EXT SYNC IN
7 9
PGE30038-01-01
CONNECTOR PWB
TIME CODE IN
2
J1002
J1003
3
TIME CODE OUT
6
4
TV 8P
1
4
5
8
J1004
5
7

– ADDRESS HEAD –


3
2
1
7 5 PGE40060
ADDRESS HEAD PWB

4.39 LED DISPLAY, OPERATION-1, OPERATION-2 AND SEARCH VR SCHEMATIC DIAGRAMS

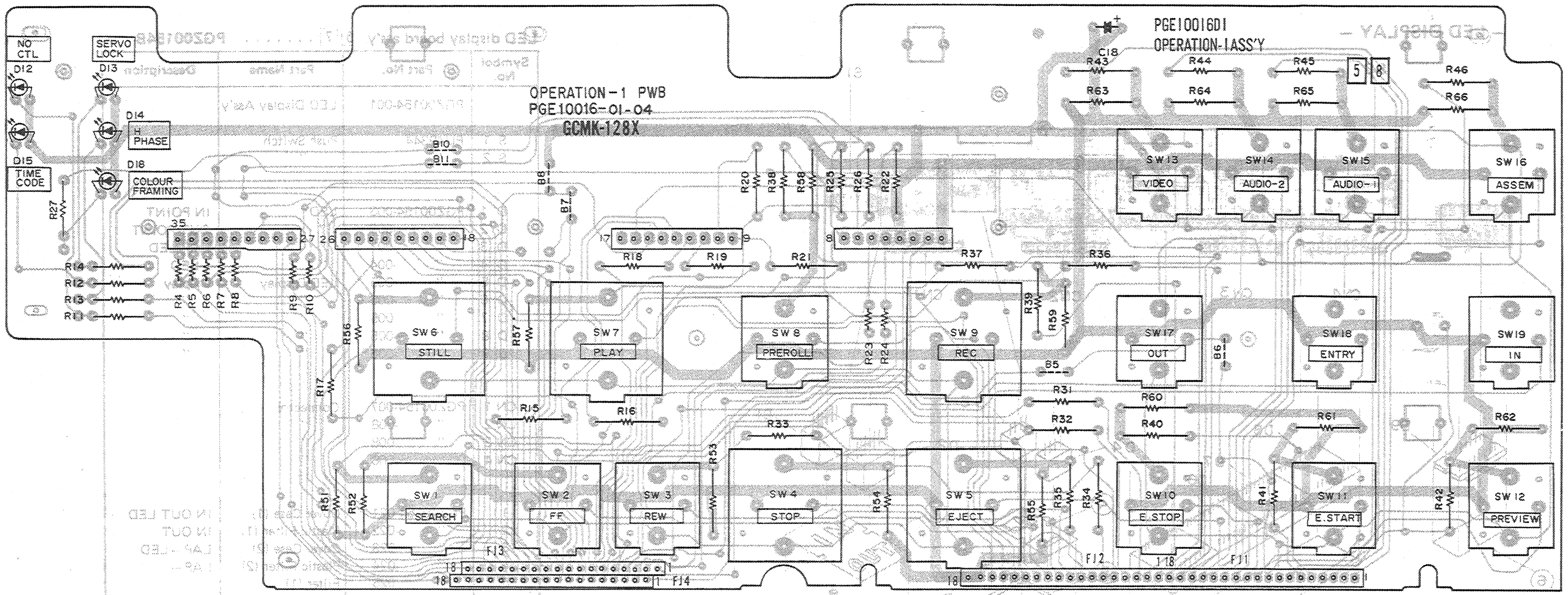

PGZ001548 57
LED DISPLAY
OPERATION - 1 58
OPERATION - 2 59
LAP
IN
OUT
RESET
REC
PREROLL
PLAY
STILL
EJECT
STOP
REW
FF
SEARCH
ADB
S1
S2
S3
S4
S5
S6
S7
S8
S9
S21
SERVO LOCK
NO CTL
H PHASE
TIME CODE
COLOUR FRAMING
FJ 1
FJ 2
IC 1 TC4094BP
IC 2 TC4021BP
IC3 TC4094BP
IC 4 TC4021BP
IC5 TC4021BP
IC 6 µPD650C-219
IC7 TC5022BP
IC8 TC4019BP
IC9 TC4094BP
IC 11
IC 12
IC 13
CN 1
9V
9V
9V
9V
NO CTL LED
T. CODE LED
H. PHASE LED
S. LOCK LED
OUT LED
IN LED
DISP DATA 3
DISP DATA 2
DISP DATA 1
DISP DATA 0
DISPCLOCK
DISP START
RESET SW
LAP SW
RESET (OE)
ADB - SW
5V
5V
S04 FINAL
C.F. SERVO LED
ADB LED
EJECT
S02
GND
STROBE
GND
CL
GND
P/S
SIO LOCAL
GND
GND
GND
GND
TO SYSCON 05-CN2
FROM SEARCH VR CN3
CN 2
GND
SP0
SP1
SP2
F/R
SP3
CN3
SEARCH VR.
S20 60
M54519P
IN 20K
OUT
GND(8)
DTC124EF
DTA124EF
BA618
Vcc (8)
GND (9)

NOTES: Unless otherwise specified;

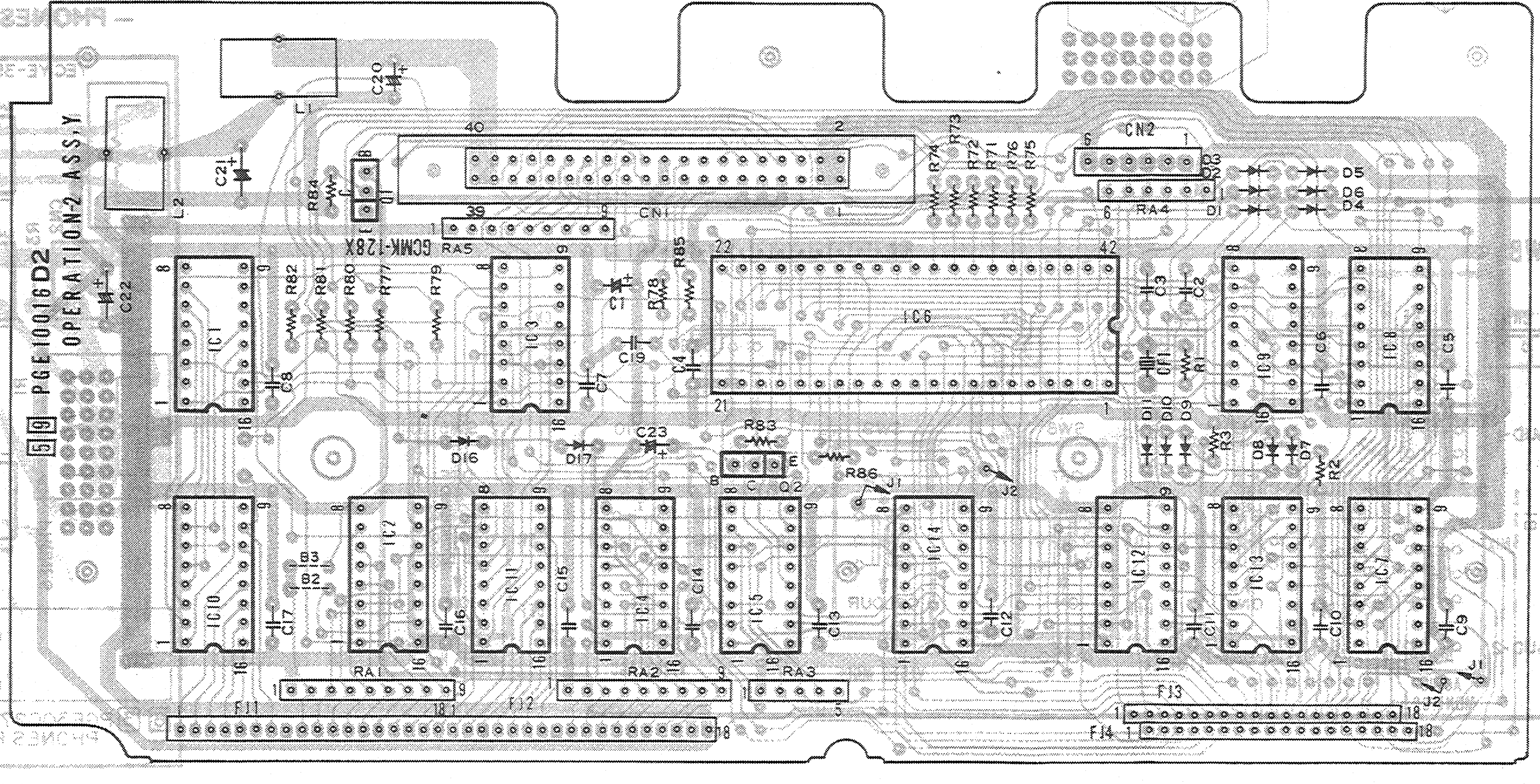
1. All resistance values are in ohms. (1/6 W), (1/8 W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in parentheses.
6. Shaded ( ) parts are critical for safety. Replace only with specified part numbers.
7. NPN type digital transistors are DTC124EF.
8. PNP type digital transistors are DTA124EF.
9. All diodes are 1SS133.

4.40 OPERATION-1, OPERATION-2 AND SEARCH VR CIRCUIT BOARDS

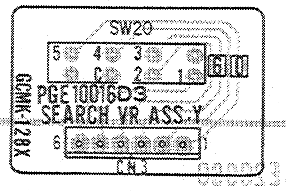
– OPERATION-1 –


NO CTL
SERVO LOCK
D12
D13
D14
H PHASE
D15
TIME CODE
D18
COLOUR FRAMING
OPERATION-1 PWB
PGE10016-01-04
GCMK-128X
PGE10016D1
OPERATION-1ASS'Y
SW13 VIDEO
SW14 AUDIO-2
SW15 AUDIO-1
SW16 ASSEM
SW6 STILL
SW7 PLAY
SW8 PREROLL
SW9 REC
SW17 OUT
SW18 ENTRY
SW19 IN
SW1 SEARCH
SW2 FF
SW3 REW
SW4 STOP
SW5 EJECT
SW10 E.STOP
SW11 E.START
SW12 PREVIEW
FJ1
FJ2
FJ3
FJ4

– OPERATION-2 –

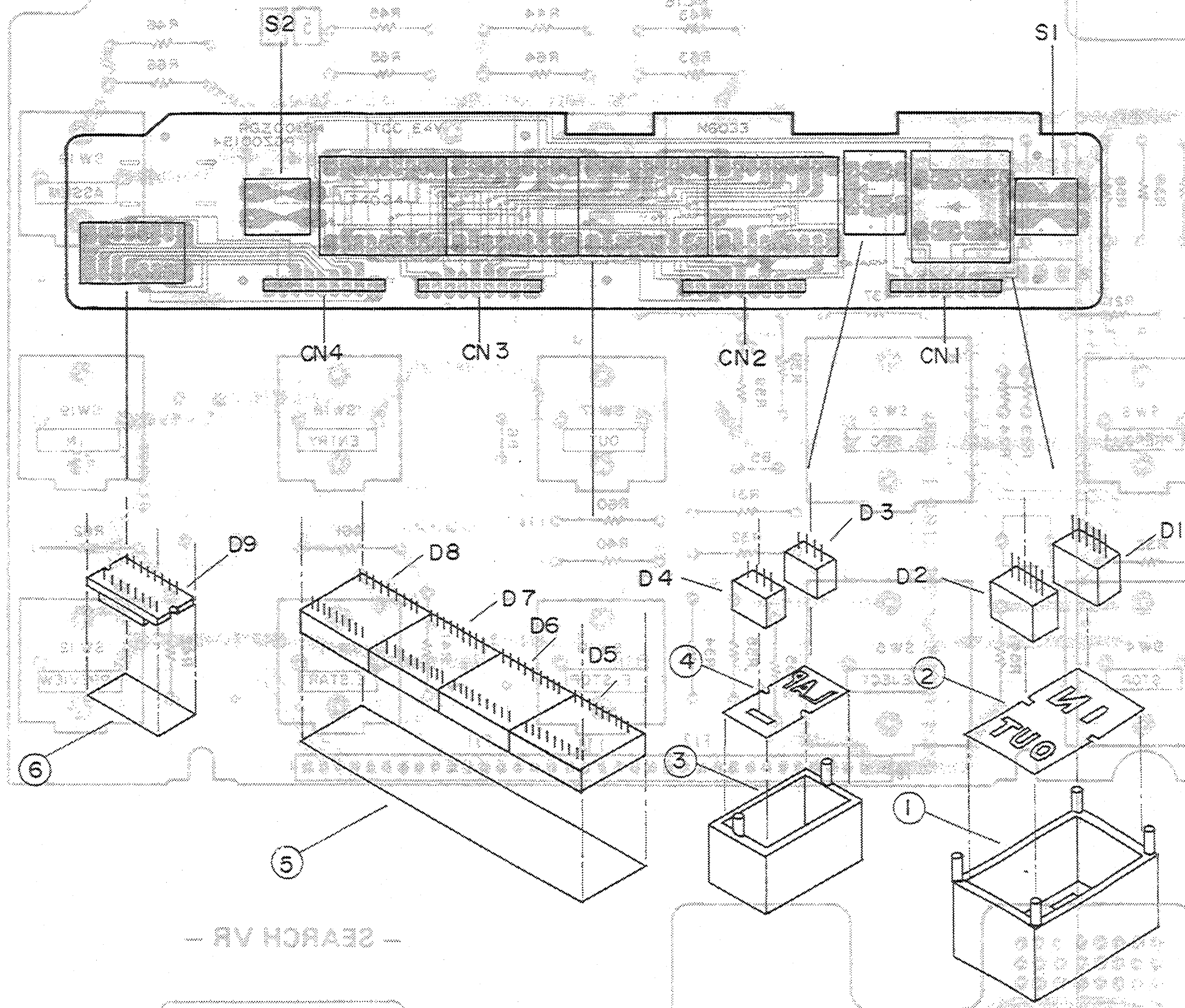

PGE10016D2
OPERATION-2 ASS'Y
GCMK-128X
L1
L2
C20
C21
C22
CN1
CN2
RA1
RA2
RA3
RA4
RA5
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
D16
D17
C23
R83
R86
J1
J2
FJ1
FJ2
FJ3
FJ4

– SEARCH VR –


SW20
PGE10016D3
SEARCH VR ASS'Y
GCMK-128X
CN3

4.41 LED DISPLAY, FRONT SW AND PHONES CIRCUIT BOARDS

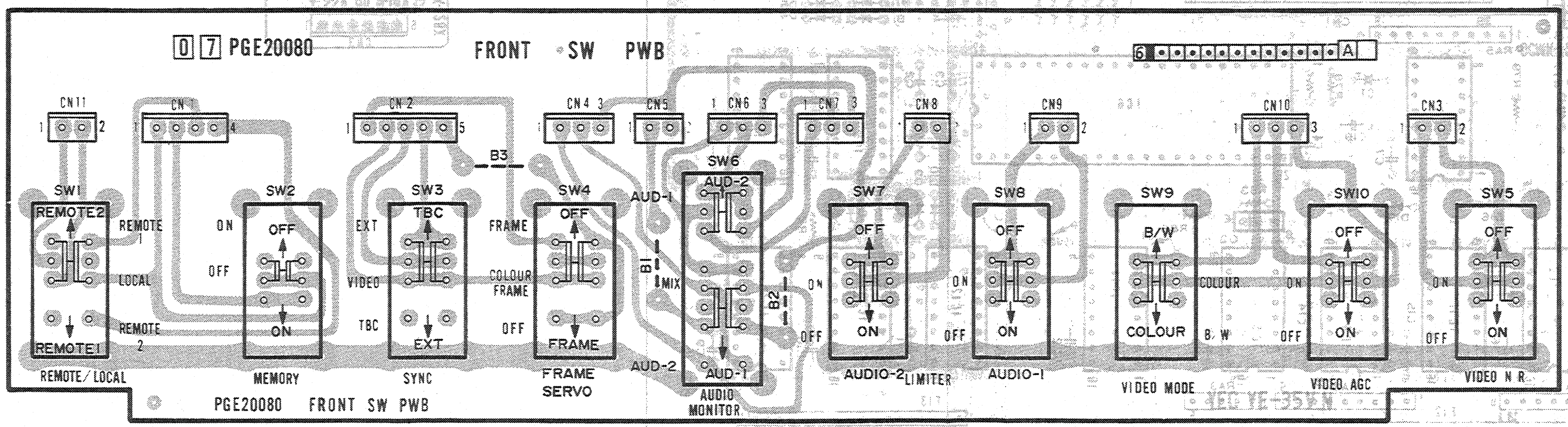
— LED DISPLAY —


S2
S1
CN4
CN 3
CN2
CN1
D9
D8
D7
D6
D5
D4
D3
D2
D1
④
③
②
①
⑤
⑥

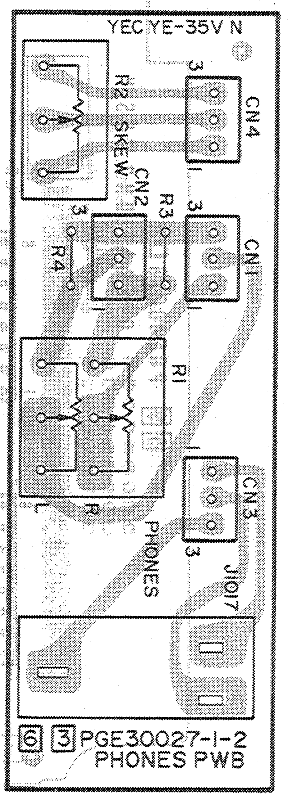
LED display board ass'y 5 7 .... **PGZ00154B**

Symbol No.	Part No.	Part Name	Description
	PGZ00154-001	LED Display Ass'y	
S 1	PU49344	Push Switch	
S 2	"	"	
D 1	PGZ00154-003	LED	IN POINT
D 2	" -003	"	OUT POINT
D 3	" -004	"	LAP LED
D 4	" -004	"	—LED
D 5	" -005	LED Display	Display
D 6	" -005	"	"
D 7	" -005	"	"
D 8	" -005	"	"
D 9	" -006	"	"
CN 1	PGZ00154-007	Connector	
CN 2	" -008	"	
CN 3	" -008	"	
CN 4	" -008	"	
1	PGZ00154-021	Cover Case (1)	IN OUT LED
2	" -022	Plastic Filter (1)	IN OUT
3	" -023	Cover Case (2)	LAP —LED
4	" -024	Plastic Filter (2)	LAP —
5	" -025	Filter (1)	
6	" -026	" (2)	

— FRONT SW —

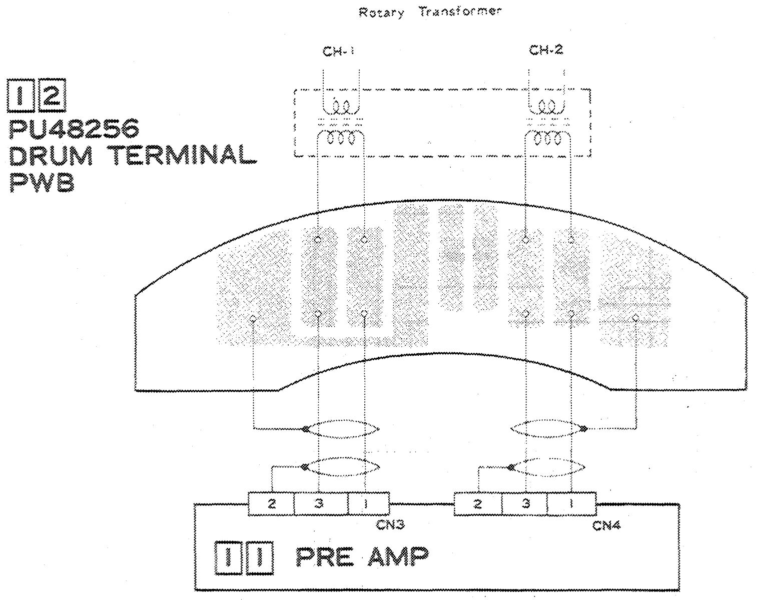

0 7 PGE20080
FRONT SW PWB
6 A
CN11
CN1
CN 2
CN4
CN5
CN6
CN7
CN8
CN9
CN10
CN3
B3
B1
B2
SW1
REMOTE2
REMOTE 1
LOCAL
REMOTE 2
REMOTE1
REMOTE/LOCAL
SW2
ON
OFF
MEMORY
SW3
EXT
TBC
VIDEO
SYNC
SW4
FRAME
OFF
COLOUR FRAME
FRAME SERVO
SW6
AUD-1
AUD-2
MIX
AUDIO MONITOR
SW7
ON
OFF
AUDIO-2
LIMITER
SW8
AUDIO-1
SW9
B/W
COLOUR
B.W
VIDEO MODE
SW10
VIDEO AGC
SW5
VIDEO N R
PGE20080 FRONT SW PWB

— PHONES —

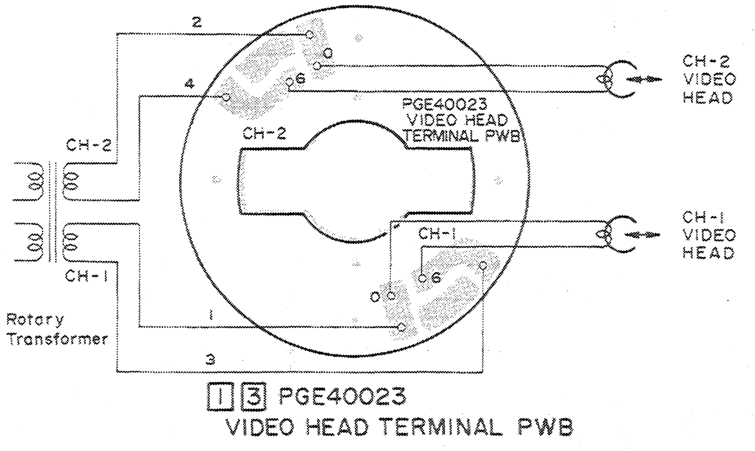

YEC YE-35V N
R2 SKEW
CN4
CN2
R3
CN1
R4
R1
L
R
PHONES
CN3
J1017
6 3 PGE30027-1-2
PHONES PWB

4.42 AUDIO LEVEL SW, DRUM TERMINAL, VIDEO HEAD TERMINAL AND TEST PIN CIRCUIT BOARDS

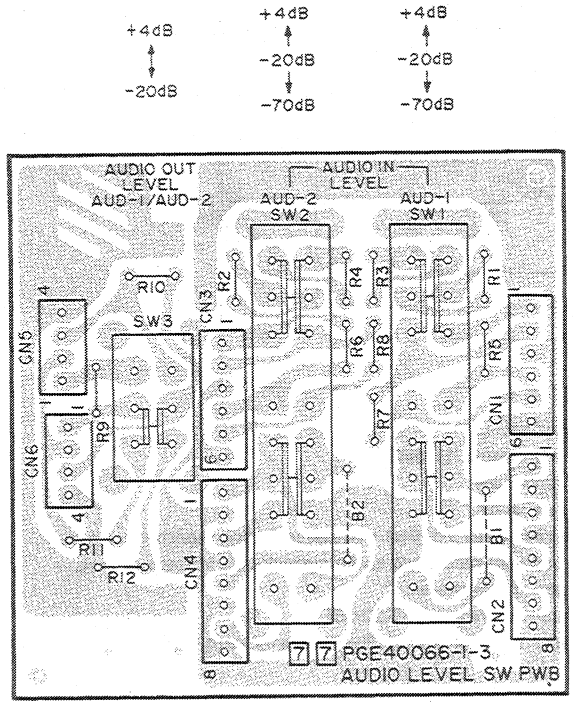
– DRUM TERMINAL –


Rotary Transformer
CH-1
CH-2
1 2
PU48256
DRUM TERMINAL
PWB
2 3 1
CN3
2 3 1
CN4
1 1 PRE AMP

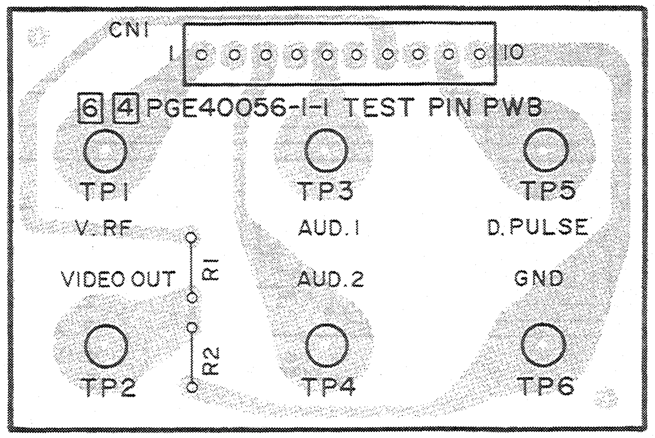
– VIDEO HEAD TERMINAL –


2
4
6
CH-2
CH-1
PGE40023
VIDEO HEAD
TERMINAL PWB
CH-2
CH-1
6
1
3
Rotary
Transformer
CH-2
VIDEO
HEAD
CH-1
VIDEO
HEAD
1 3 PGE40023
VIDEO HEAD TERMINAL PWB

– AUDIO LEVEL SW –

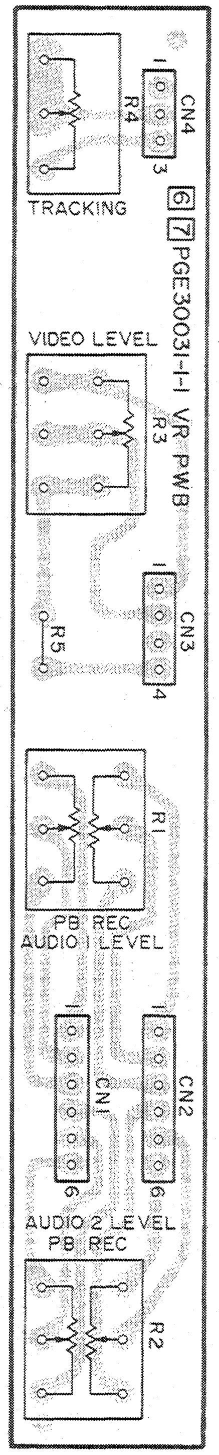

+4dB
-20dB
+4dB
-20dB
-70dB
+4dB
-20dB
-70dB
AUDIO OUT
LEVEL
AUD-1/AUD-2
AUDIO IN
LEVEL
AUD-2
SW2
AUD-1
SW1
R10
SW3
CN5
CN6
R9
R11
R12
CN3
R2
R4
R3
R1
R6
R8
R5
R7
B2
B1
CN1
CN4
CN2
7 7 PGE40066-1-3
AUDIO LEVEL SW PWB

– TEST PIN –

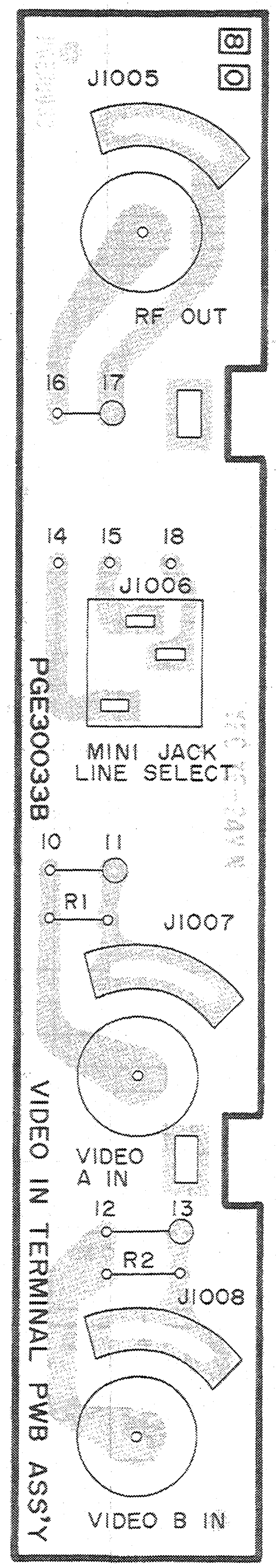

CN1
1
10
6 4 PGE40056-1-1 TEST PIN PWB
TP1
V.RF
TP3
AUD.1
TP5
D.PULSE
VIDEO OUT
R1
R2
AUD.2
GND
TP2
TP4
TP6

4.43 VR, VIDEO INPUT TERMINAL AND VIDEO OUTPUT TERMINAL CIRCUIT BOARDS

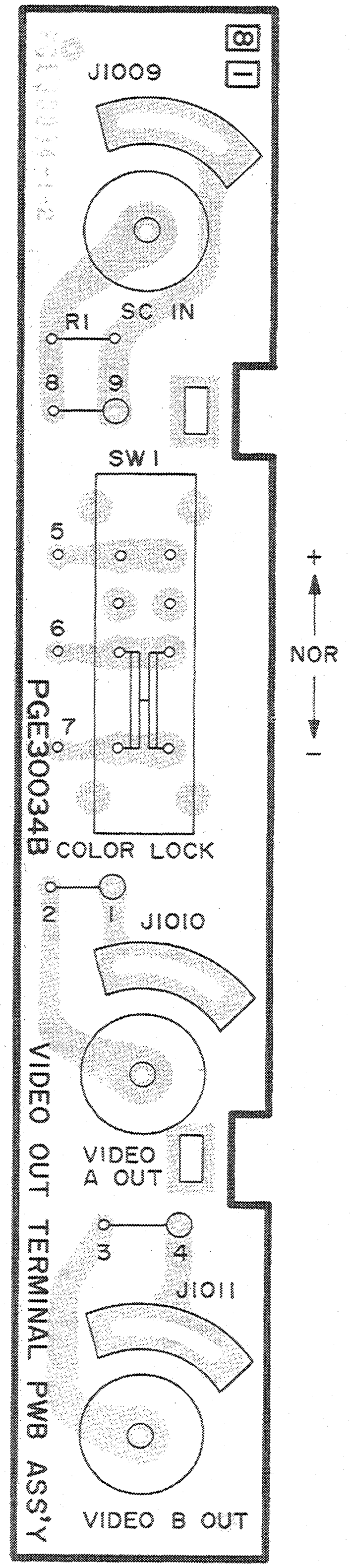
– VR –


CN4
R4
TRACKING
6 7 PGE30031-1-1 VR PWB
VIDEO LEVEL
R3
CN3
R5
R1
PB REC
AUDIO 1 LEVEL
CN1
CN2
AUDIO 2 LEVEL
PB REC
R2

– VIDEO INPUT TERMINAL –


8 0
J1005
RF OUT
16
17
14
15
18
J1006
MINI JACK
LINE SELECT
PGE30033B
10
11
R1
J1007
VIDEO
A IN
12
13
R2
J1008
VIDEO B IN
VIDEO IN TERMINAL PWB ASS'Y

– VIDEO OUTPUT TERMINAL –


8 1
J1009
R1
SC IN
8
9
SW1
5
6
7
+
NOR
–
PGE30034B
COLOR LOCK
2
1
J1010
VIDEO
A OUT
3
4
J1011
VIDEO B OUT
VIDEO OUT TERMINAL PWB ASS'Y

4.44 COLOUR FRAME SERVO SCHEMATIC DIAGRAM

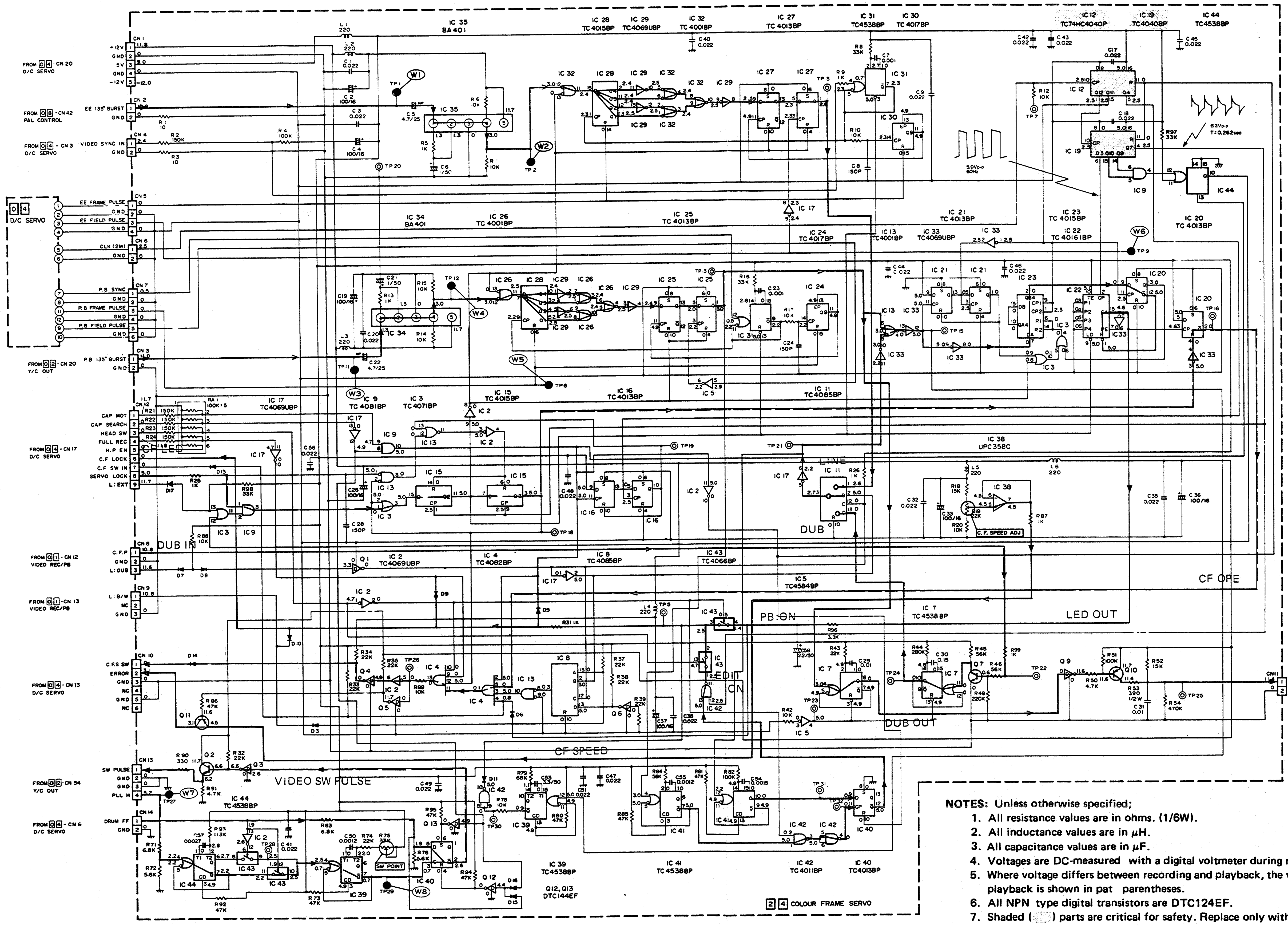
5

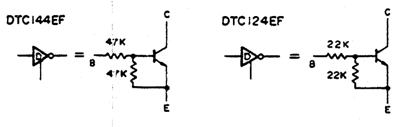
4

3

2

1


IC 35 BA401
IC 28 TC4015BP
IC 29 TC4069UBP
IC 32 TC4001BP
IC 27 TC4013BP
IC 31 TC4538BP
IC 30 TC4017BP
IC 12 TC74HC4040P
IC 19 TC4040BP
IC 44 TC4538BP
FROM 0 4 - CN 20 D/C SERVO
FROM 0 8 - CN 42 PAL CONTROL
FROM 0 4 - CN 3 D/C SERVO
EE 135° BURST
VIDEO SYNC IN
0 4 D/C SERVO
EE FRAME PULSE
EE FIELD PULSE
CLK (2M)
P.B SYNC
P.B FRAME PULSE
P.B FIELD PULSE
FROM 0 2 - CN 20 Y/C OUT
P.B 135° BURST
IC 34 BA401
IC 26 TC4001BP
IC 25 TC4013BP
IC 24 TC4017BP
IC 17
IC 13 TC4001BP
IC 33 TC4069UBP
IC 21 TC4013BP
IC 23 TC4015BP
IC 22 TC40161BP
IC 20 TC4013BP
5.0Vp-p 60Hz
6.2Vp-p T=0.262sec
W1
W2
W3
W4
W5
W6
W7
W8
IC 17 TC4069UBP
IC 9 TC4081BP
IC 3 TC4071BP
IC 15 TC4015BP
IC 16 TC4013BP
IC 11 TC4085BP
IC 38 UPC358C
FROM 0 4 - CN 17 D/C SERVO
CAP MOT
CAP SEARCH
HEAD SW
FULL REC
H.P EN
C.F LOCK
C.F SW IN
SERVO LOCK
L: EXT
LINE
DUB
C.F. SPEED ADJ
FROM 0 1 - CN 12 VIDEO REC/PB
C.F.P
L: DUB
DUB IN
FROM 0 1 - CN 13 VIDEO REC/PB
L: B/W
IC 2 TC4069UBP
IC 4 TC4082BP
IC 8 TC4085BP
IC 43 TC4066BP
IC5 TC4584BP
IC 7 TC4538BP
CF OPE
LED OUT
PB: ON
EDIT ON
DUB OUT
CF SPEED
FROM 0 4 - CN 13 D/C SERVO
C.F.S SW
ERROR
TO 0 2 - CN19 Y/C OUT
C.F. PULSE OUT
FROM 0 8 - CN 54 Y/C OUT
SW PULSE
PLL H
VIDEO SW PULSE
IC 44 TC4538BP
FROM 0 4 - CN 6 D/C SERVO
DRUM FF
SW POINT
IC 39 TC4538BP
Q12, Q13 DTC144EF
IC 41 TC4538BP
IC 42 TC4011BP
IC 40 TC4013BP
2 4 COLOUR FRAME SERVO


DTC144EF
47K
47K
DTC124EF
22K
22K
C
B
E

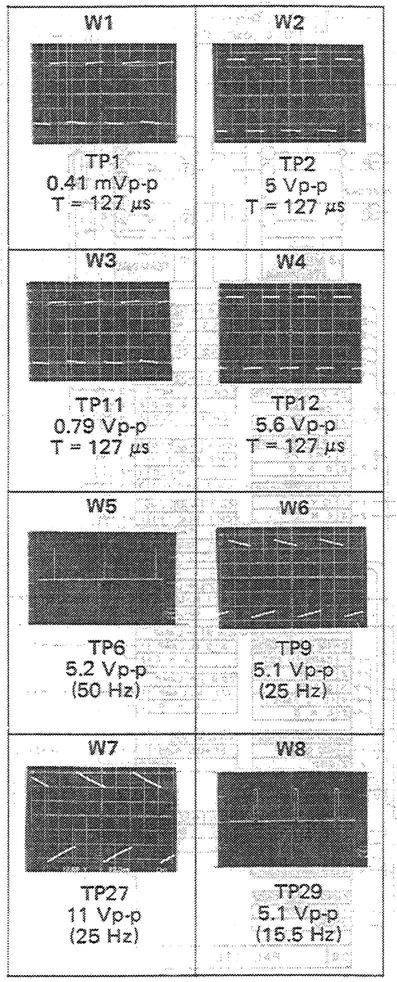
NOTES: Unless otherwise specified;

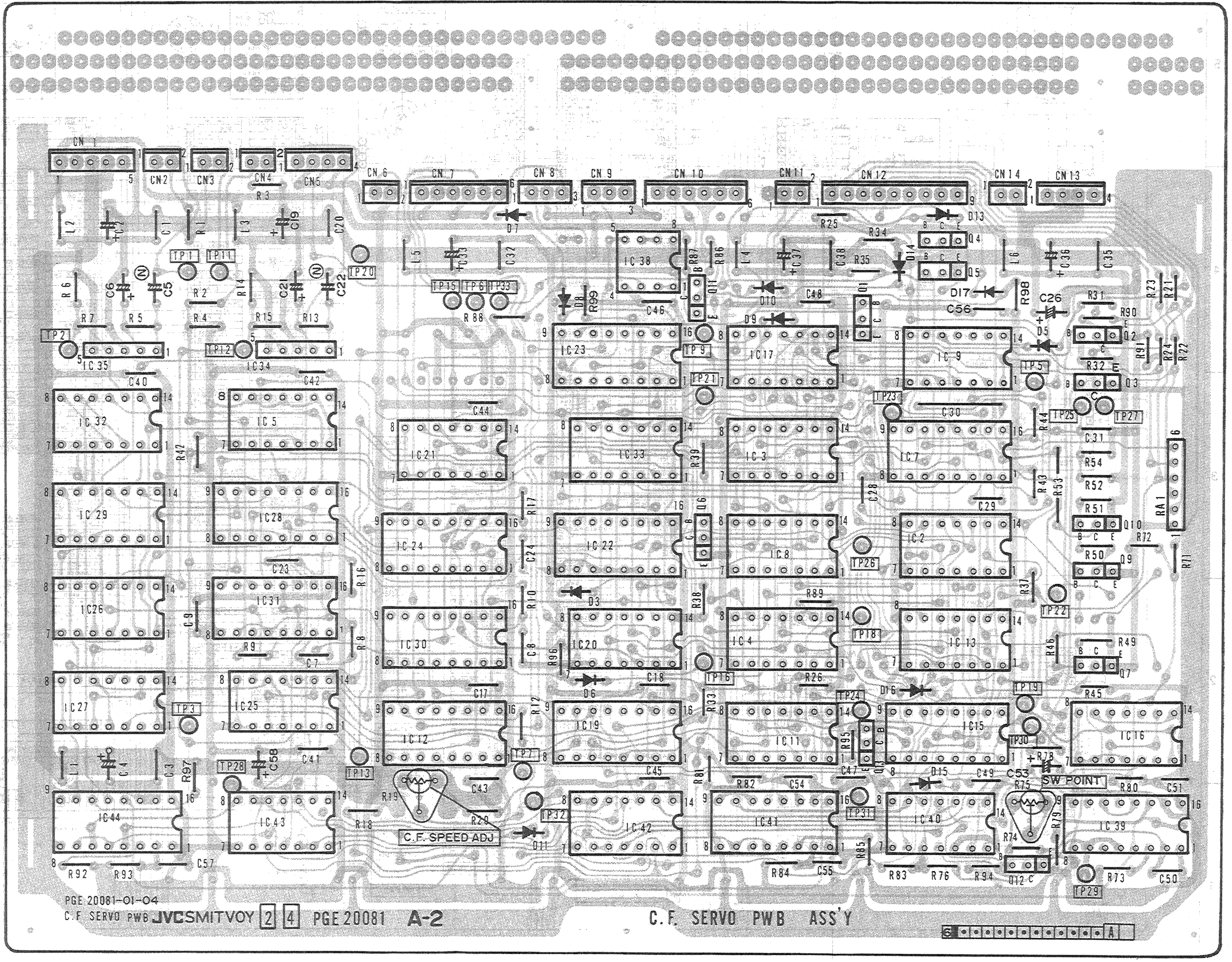
1. All resistance values are in ohms. (1/6W).
2. All inductance values are in μH.
3. All capacitance values are in μF.
4. Voltages are DC-measured with a digital voltmeter during recording mode.
5. Where voltage differs between recording and playback, the voltage during playback is shown in pat parentheses.
6. All NPN type digital transistors are DTC124EF.
7. Shaded ( ) parts are critical for safety. Replace only with specified part numbers.
8. NPN type transistors are 2SD636RS.
9. PNP type transistors are 2SB641RS.
10. All diodes are 1SS133.

A B C 4-40 4-40 E F G H

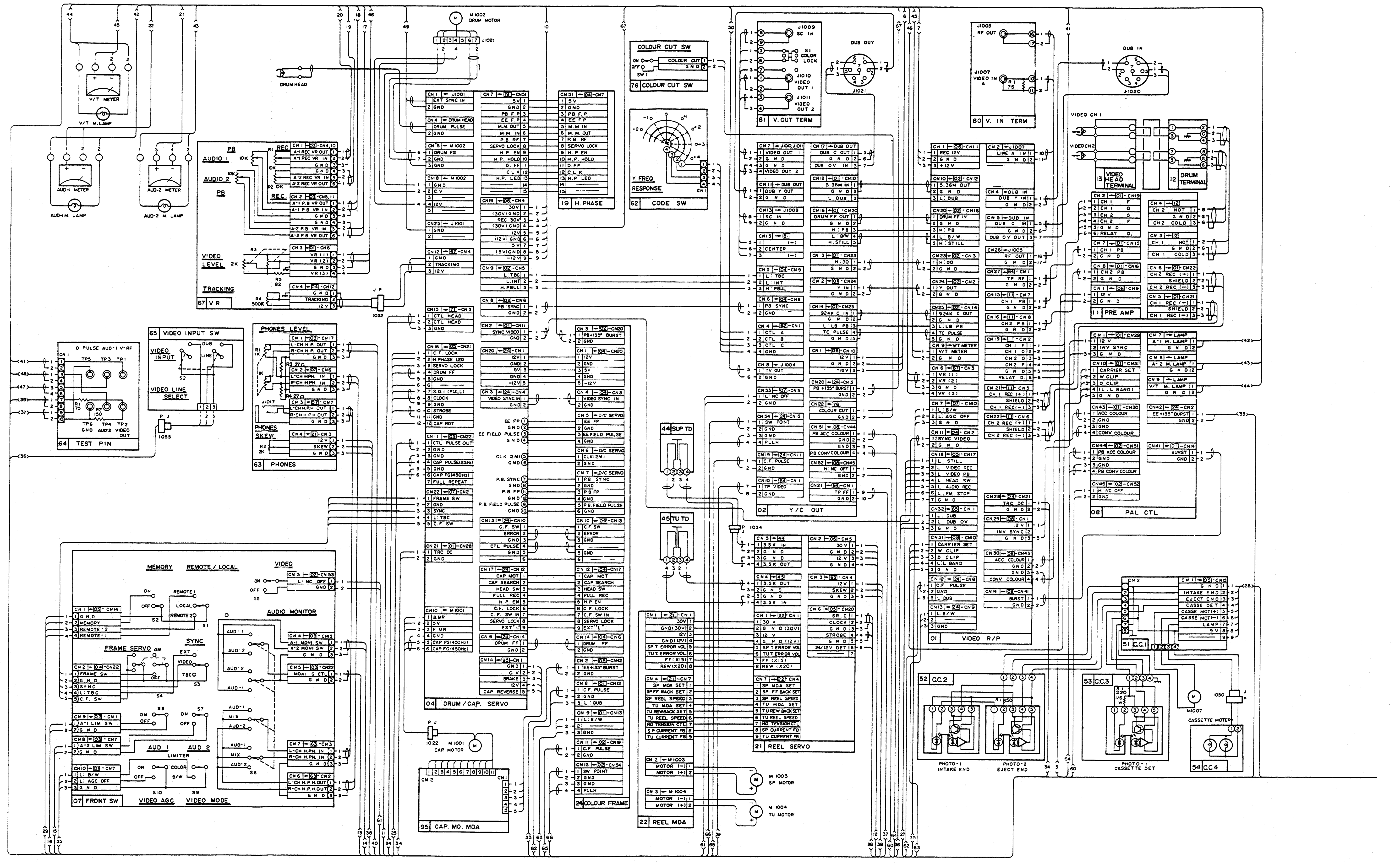
4.45 COLOUR FRAME SERVO CIRCUIT BOARD

– MAIN WAVEFORMS OF COLOUR FRAME SERVO CIRCUIT –

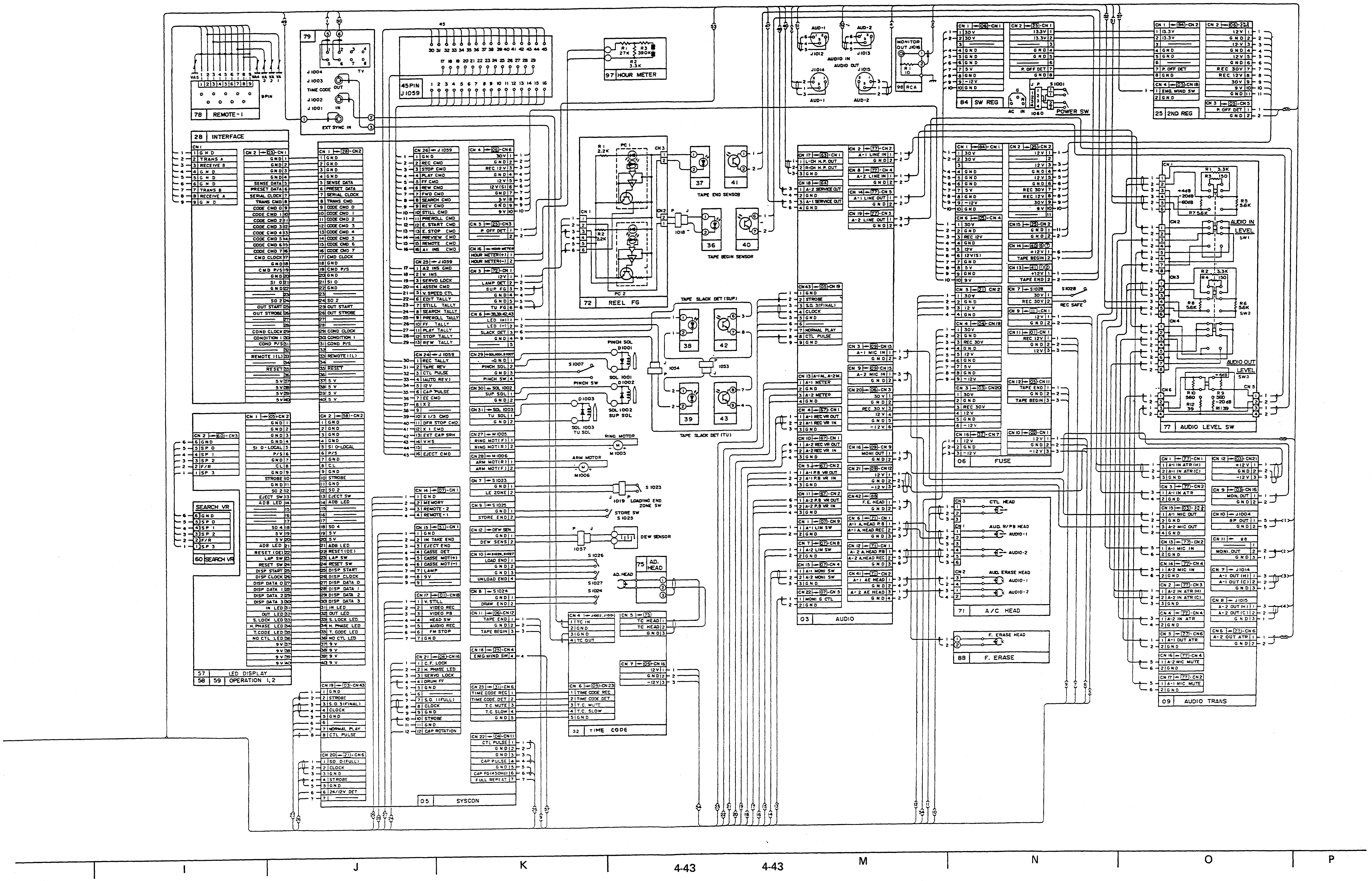



CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
CN11
CN12
CN14
CN13
IC38
IC23
IC17
IC9
IC35
IC34
IC32
IC5
IC21
IC33
IC3
IC7
IC29
IC28
IC24
IC22
IC8
IC2
IC26
IC31
IC30
IC20
IC4
IC13
IC27
IC25
IC12
IC19
IC11
IC15
IC16
IC44
IC43
IC42
IC41
IC40
IC39
TP1
TP11
TP20
TP15
TP6
TP33
TP2
TP12
TP9
TP21
TP5
TP23
TP25
TP27
TP26
TP22
TP18
TP16
TP24
TP19
TP30
TP3
TP28
TP13
TP7
TP32
TP31
TP29
C.F. SPEED ADJ
SW POINT
PGE 20081-01-04
C.F. SERVO PWB JVCSMITVOY 2 4 PGE 20081 A-2
C.F. SERVO PWB ASS'Y

4.46 OVERALL WIRING DIAGRAM

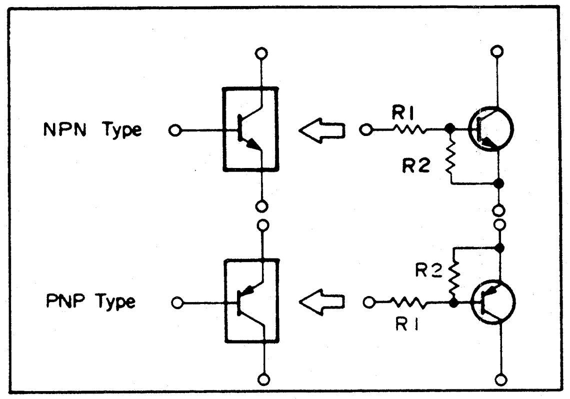


M1002 DRUM MOTOR
DRUM HEAD
V/T METER
V/T M. LAMP
AUD-1 METER
AUD-1M. LAMP
AUD-2 METER
AUD-2 M. LAMP
AUDIO 1
AUDIO 2
VIDEO LEVEL
TRACKING
67 V R
J P 1032
64 TEST PIN
65 VIDEO INPUT SW
VIDEO INPUT
VIDEO LINE SELECT
P J 1055
PHONES LEVEL
PHONES SKEW
63 PHONES
04 DRUM / CAP. SERVO
19 H. PHASE
76 COLOUR CUT SW
Y. FREQ RESPONSE
62 CODE SW
44 SUP TD
45 TU TD
P J 1034
81 V. OUT TERM
J1009 SC IN
J1010 VIDEO OUT 1
J1011 VIDEO OUT 2
DUB OUT
J1021
02 Y/C OUT
J1005 RF OUT
J1007 VIDEO IN
80 V. IN TERM
DUB IN
J1020
VIDEO CH 1
VIDEO CH 2
13 VIDEO HEAD TERMINAL
12 DRUM TERMINAL
11 PRE AMP
08 PAL CTL
01 VIDEO R/P
MEMORY
REMOTE / LOCAL
VIDEO
AUDIO MONITOR
FRAME SERVO
SYNC
AUD 1
AUD 2
LIMITER
07 FRONT SW
VIDEO AGC
VIDEO MODE
P J 1022
M 1001 CAP MOTOR
95 CAP. MO. MDA
24 COLOUR FRAME
21 REEL SERVO
22 REEL MDA
M 1003 SP MOTOR
M 1004 TU MOTOR
51 C.C.1
52 C.C.2
53 C.C.3
54 C.C.4
PHOTO-1 INTAKE END
PHOTO-2 EJECT END
PHOTO-1 CASSETTE DET
M1007
J P 1050
CASSETTE MOTER
6
5
4
3
2
1
A
B
C
E
F
G
H


78 REMOTE-1
79
TIME CODE
EXT SYNC IN
45PIN J1059
97 HOUR METER
AUD-1
AUD-2
AUDIO IN
AUDIO OUT
MONITOR OUT J1016
98 RCA
84 SW REG
POWER SW
25 2ND REG
28 INTERFACE
72 REEL FG
TAPE END SENSOR
TAPE BEGIN SENSOR
TAPE SLACK DET (SUP)
TAPE SLACK DET (TU)
PINCH SOL
RING MOTOR
ARM MOTOR
DEW SENSOR
75 AD. HEAD
03 AUDIO
06 FUSE
AUDIO IN LEVEL
AUDIO OUT LEVEL
77 AUDIO LEVEL SW
71 A/C HEAD
88 F. ERASE
09 AUDIO TRANS
05 SYSCON
32 TIME CODE
57 LED DISPLAY
58 59 OPERATION 1, 2
60 SEARCH VR
I
J
K
4-43
4-43
M
N
O
P

4.47 DIGITAL TRANSISTOR

DIGITAL TRANSISTOR



RESISTOR VALUES

JUNCTION	Part No.	R1 (kΩ)	R2 (kΩ)
PNP	DTA124EF	22	22
	DTA124ES	22	22
	DTA144EF	47	47
NPN	DTC124EF	22	22
	DTC144EF	47	47

NOTE:
The digital transistor is a type that includes built in resistors. It features and small size and high reliability. Both PNP and NPN types are available.

4.48 IC BLOCK DIAGRAMS

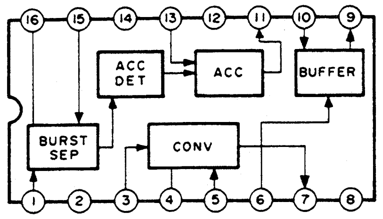
4.48.1 INDEX OF IC BLOCK DIAGRAMS

Part Name	Page	Part Name	Page
AN305	4-45	TC74HC74P	4-49
AN607P	4-45	TC74HC163P	4-49
AN608P	4-45	TC74HC193P	4-49
AN6300	4-45	TC74HC4040P	4-49
AN6341N	4-45	TC4001BP	4-49
AN6342N	4-45	TC4011BP	4-49
AN6344	4-45	TC4012BP	4-49
AN6371	4-45	TC4013BP	4-49
BA401	4-45	TC4015BP	4-49
BA618	4-45	TC40161BP	4-49
HA17555PS	4-45	TC4017BP	4-50
HD6821P	4-45	TC4019BP	4-50
HD6303RP	4-45	TC4020BP	4-50
HD14021B	4-45	TC4021BP	4-50
LA7016	4-45	TC4027BP	4-50
LH0080H	4-45	TC4040BP	4-50
LH0084H	4-45	TC4050BP	4-50
LM565CN	4-46	TC4053BP	4-50
LM2907N-8	4-46	TC4066BP	4-50
LM6416E-1985	4-46	TC4069UBP	4-50
MB88501-382L	4-46	TC4071BP	4-50
MCM1065	4-46	TC4081BP	4-51
MC3486P	4-46	TC4085BP	4-51
MC3487P	4-46	TC4094BP	4-51
MC14075BCP	4-46	TC4516BP	4-51
MC14520BCP	4-46	TC4528BP	4-51
MN50005JVE	4-46	TC4538BP	4-51
M5L8255AP-5	4-46	TC4584BP	4-51
M5216P	4-47	TC5022BP	4-51
M5218P	4-47	TK15021	4-51
M5220P	4-47	TL592P	4-51
M51207L	4-47	TM-016	4-51
M51386L	4-47	UPC311C	4-52
M51490L	4-47	UPC358C	4-52
M51681L	4-47	UPC741C	4-52
M54519P	4-47	UPC1163H	4-52
M54544L	4-47	UPC1458C	4-52
M58725P	4-47	UPD650C-219	4-52
M74LS04P	4-47	UPD7508C-A28	4-52
M74LS08P	4-47	4VT01	4-52
M74LS20P	4-47	5VT08	4-52
NJM2903D	4-48	6VT04	4-52
SN74LS138N	4-48	6VT05	4-52
SN74LS139N	4-48	7VT05	4-52
SN76670N	4-48	7VT07	4-52
STR2012A	4-48	7VT08	4-53
TA7140BP	4-48	8VT10	4-53
TA7140P	4-48	10VT19	4-53
TA7347P	4-48	10VT25	4-53
TA7348P	4-48	11VT02	4-53
TC40H368P	4-48	12VT19	4-53
TC40H393P	4-48	13VT05	4-53
TC74HC00P	4-48	14VT10	4-53
TC74HC02P	4-49		
TC74HC04P	4-49		

4.48.2 IC BLOCK DIAGRAMS

– AN305 –

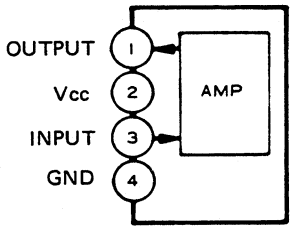
VTR Color AGC Circuit

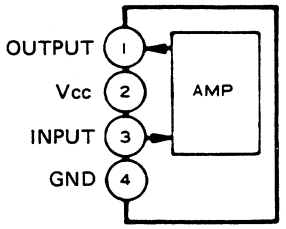

16
15
14
13
12
11
10
9
ACC DET
ACC
BUFFER
BURST SEP
CONV
1
2
3
4
5
6
7
8

– AN607P –

– AN608P –

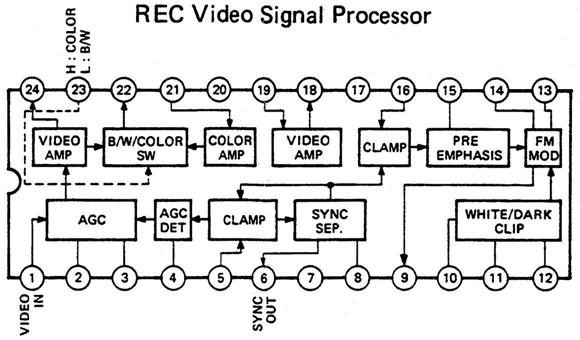
Wide Band Amplifier Circuit


OUTPUT 1
Vcc 2
INPUT 3
GND 4
AMP


OUTPUT 1
Vcc 2
INPUT 3
GND 4
AMP

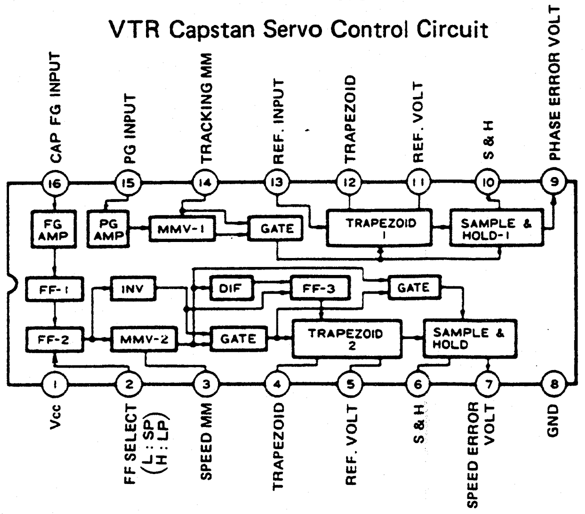
– AN6300 –

REC Video Signal Processor


H : COLOR
L : B/W
24
23
22
21
20
19
18
17
16
15
14
13
VIDEO AMP
B/W/COLOR SW
COLOR AMP
VIDEO AMP
CLAMP
PRE EMPHASIS
FM MOD
AGC
AGC DET
CLAMP
SYNC SEP.
WHITE/DARK CLIP
1
2
3
4
5
6
7
8
9
10
11
12
VIDEO IN
SYNC OUT

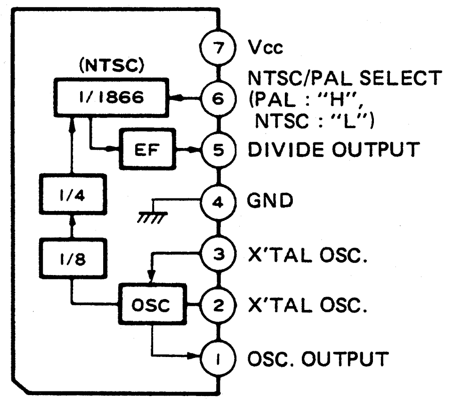
– AN6341N –

VTR Capstan Servo Control Circuit


CAP FG INPUT
PG INPUT
TRACKING MM
REF. INPUT
TRAPEZOID
REF. VOLT
S & H
PHASE ERROR VOLT
16
15
14
13
12
11
10
9
FG AMP
PG AMP
MMV-1
GATE
TRAPEZOID 1
SAMPLE & HOLD-1
FF-1
INV
DIF
FF-3
GATE
FF-2
MMV-2
GATE
TRAPEZOID 2
SAMPLE & HOLD
1
2
3
4
5
6
7
8
Vcc
FF SELECT (L : SP) (H : LP)
SPEED MM
TRAPEZOID
REF. VOLT
S & H
SPEED ERROR VOLT
GND

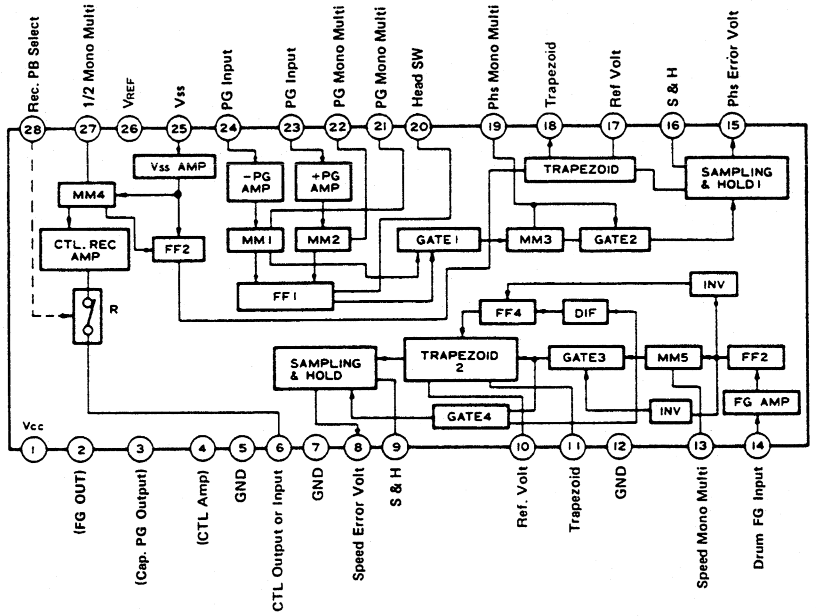
– AN6342N –

VTR Reference Frequency Divider

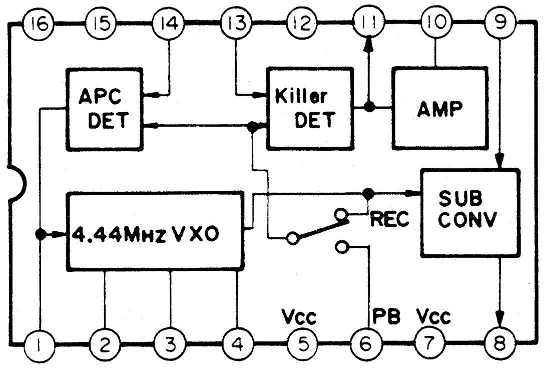

(NTSC)
1/1866
EF
1/4
1/8
OSC
7 Vcc
6 NTSC/PAL SELECT (PAL : "H", NTSC : "L")
5 DIVIDE OUTPUT
4 GND
3 X'TAL OSC.
2 X'TAL OSC.
1 OSC. OUTPUT

– AN6344 –

VTR Cylinder Servo Control

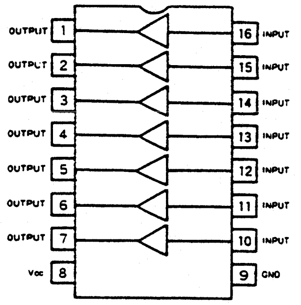

Rec. PB Select
1/2 Mono Multi
VREF
Vss
PG Input
PG Input
PG Mono Multi
PG Mono Multi
Head SW
Phs Mono Multi
Trapezoid
Ref Volt
S & H
Phs Error Volt
28
27
26
25
24
23
22
21
20
19
18
17
16
15
Vss AMP
-PG AMP
+PG AMP
TRAPEZOID
SAMPLING & HOLD1
MM4
CTL. REC AMP
FF2
MM1
MM2
GATE1
MM3
GATE2
FF1
INV
FF4
DIF
R
SAMPLING & HOLD
TRAPEZOID 2
GATE3
MM5
FF2
GATE4
INV
FG AMP
Vcc
1
2
3
4
5
6
7
8
9
10
11
12
13
14
(FG OUT)
(Cap. PG Output)
(CTL Amp)
GND
CTL Output or Input
GND
Speed Error Volt
S & H
Ref. Volt
Trapezoid
GND
Speed Mono Multi
Drum FG Input

– AN6371 –

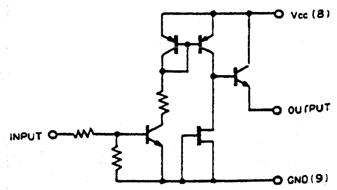

16
15
14
13
12
11
10
9
APC DET
Killer DET
AMP
4.44MHz VXO
REC
SUB CONV
Vcc
PB Vcc
1
2
3
4
5
6
7
8

– BA618 –

LED Driver

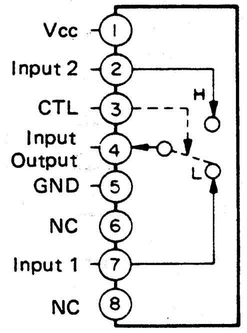

OUTPUT 1
OUTPUT 2
OUTPUT 3
OUTPUT 4
OUTPUT 5
OUTPUT 6
OUTPUT 7
Vcc 8
16 INPUT
15 INPUT
14 INPUT
13 INPUT
12 INPUT
11 INPUT
10 INPUT
9 GND

BA618 $\frac{1}{7}$ CIRCUIT


Vcc (8)
OUTPUT
INPUT
GND (9)

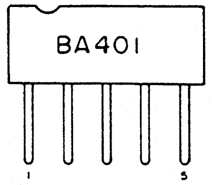
– LA7016 –

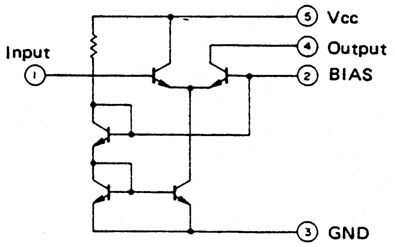
Analogue Switch


Vcc 1
Input 2 2
CTL 3
Input Output 4
GND 5
NC 6
Input 1 7
NC 8
H
L

– BA401 –

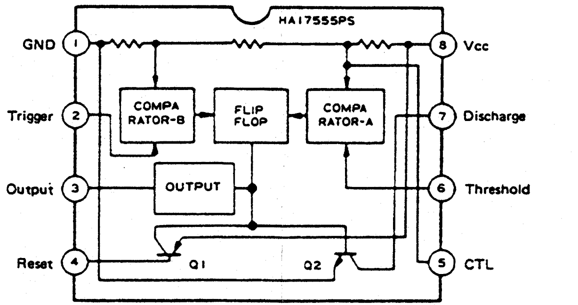
FM-IF Differential Amplifier




Input 1
5 Vcc
4 Output
2 BIAS
3 GND

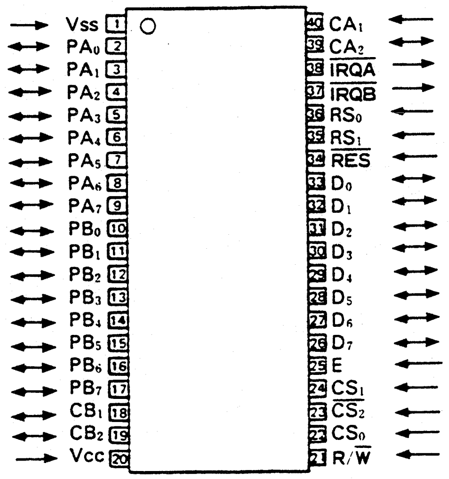
– HA17555PS –

Precision Timer


HA17555PS
GND 1
Trigger 2
Output 3
Reset 4
8 Vcc
7 Discharge
6 Threshold
5 CTL
COMPA RATOR-B
FLIP FLOP
COMPA RATOR-A
OUTPUT
Q1
Q2

– HD6821P –

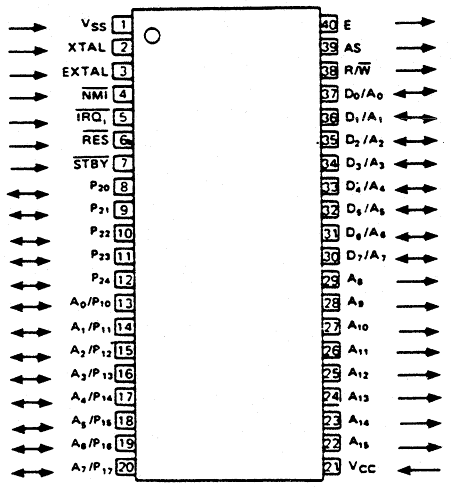
PIA (Peripheral Interface Adapter)


Vss 1
PA0 2
PA1 3
PA2 4
PA3 5
PA4 6
PA5 7
PA6 8
PA7 9
PB0 10
PB1 11
PB2 12
PB3 13
PB4 14
PB5 15
PB6 16
PB7 17
CB1 18
CB2 19
Vcc 20
40 CA1
39 CA2
38 $\overline{IRQA}$
37 $\overline{IRQB}$
36 RS0
35 RS1
34 $\overline{RES}$
33 D0
32 D1
31 D2
30 D3
29 D4
28 D5
27 D6
26 D7
25 E
24 CS1
23 $\overline{CS2}$
22 CS0
21 R/$\overline{W}$

(TOP VIEW)

– HD6303RP –

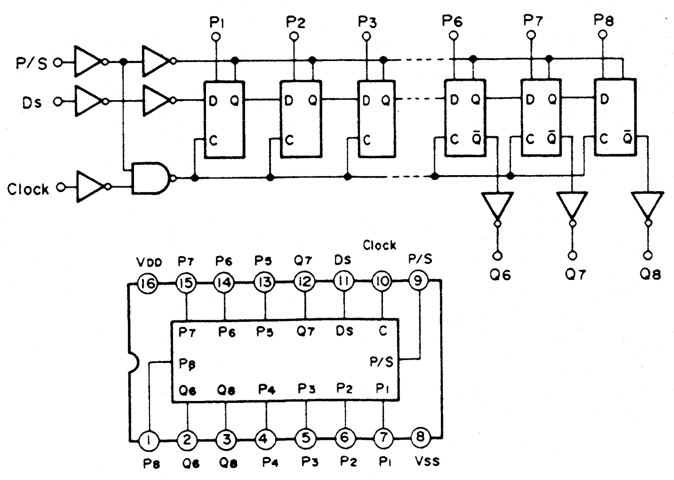
MCU (Microcomputer Unit)


Vss 1
XTAL 2
EXTAL 3
$\overline{NMI}$ 4
$\overline{IRQ_1}$ 5
$\overline{RES}$ 6
$\overline{STBY}$ 7
P20 8
P21 9
P22 10
P23 11
P24 12
A0/P10 13
A1/P11 14
A2/P12 15
A3/P13 16
A4/P14 17
A5/P15 18
A6/P16 19
A7/P17 20
40 E
39 AS
38 R/$\overline{W}$
37 D0/A0
36 D1/A1
35 D2/A2
34 D3/A3
33 D4/A4
32 D5/A5
31 D6/A6
30 D7/A7
29 A8
28 A9
27 A10
26 A11
25 A12
24 A13
23 A14
22 A15
21 Vcc

TOP VIEW

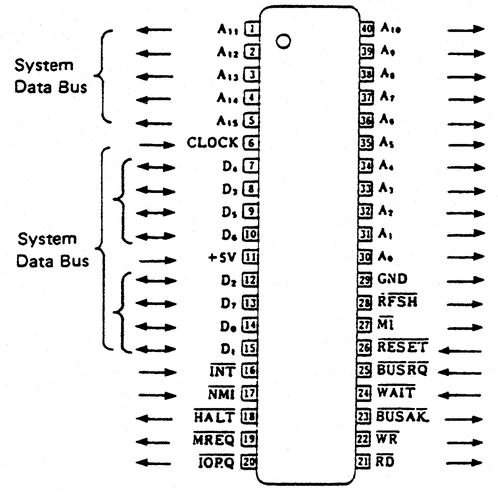
– HD14021B –

8-Stage Static Shift Registor


P/S
Ds
Clock
P1
P2
P3
P6
P7
P8
D Q
C
C $\overline{Q}$
Q6
Q7
Q8
VDD
P7
P6
P5
Q7
Ds
Clock
P/S
16
15
14
13
12
11
10
9
P7 P6 P5 Q7 Ds C
P8
P/S
Q6 Q8 P4 P3 P2 P1
1
2
3
4
5
6
7
8
P8
Q6
Q8
P4
P3
P2
P1
Vss

– LH0080H –

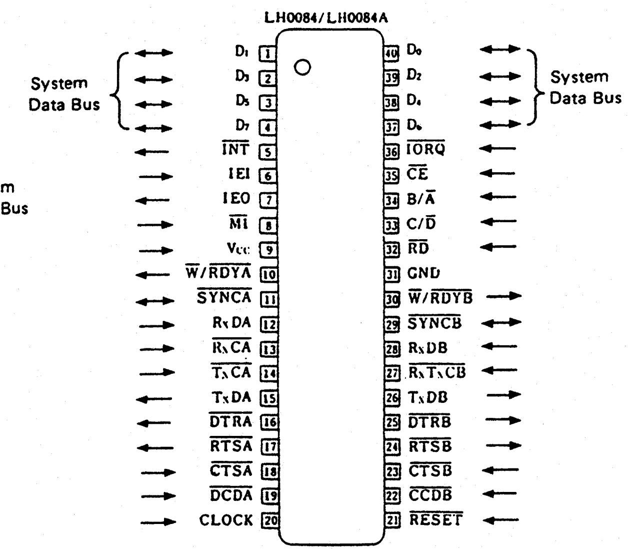
280 CPU (Central Processing Unit)


System Data Bus
A11 1
A12 2
A13 3
A14 4
A15 5
CLOCK 6
D4 7
D3 8
D5 9
D6 10
+5V 11
D2 12
D7 13
D0 14
D1 15
$\overline{INT}$ 16
$\overline{NMI}$ 17
$\overline{HALT}$ 18
$\overline{MREQ}$ 19
$\overline{IORQ}$ 20
40 A10
39 A9
38 A8
37 A7
36 A6
35 A5
34 A4
33 A3
32 A2
31 A1
30 A0
29 GND
28 $\overline{RFSH}$
27 $\overline{M1}$
26 $\overline{RESET}$
25 $\overline{BUSRQ}$
24 $\overline{WAIT}$
23 $\overline{BUSAK}$
22 $\overline{WR}$
21 $\overline{RD}$
System Data Bus
System Data Bus

TOP VIEW

– LH0084H –

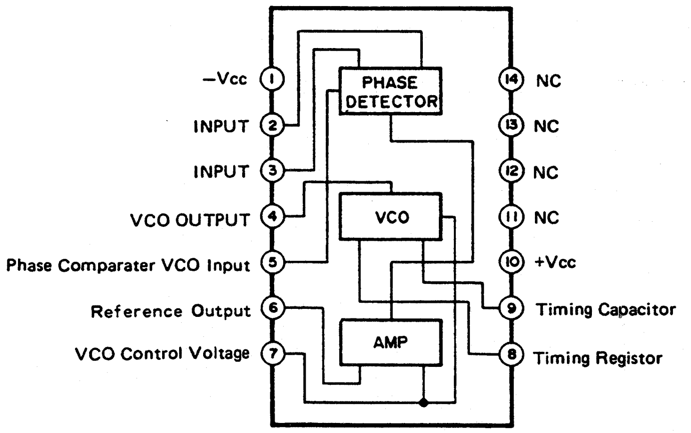
Z80 SIO/O (Serial Input/Output Controller)


LH0084/LH0084A
System Data Bus
D1 1
D3 2
D5 3
D7 4
$\overline{INT}$ 5
IEI 6
IEO 7
$\overline{M1}$ 8
Vcc 9
$\overline{W/RDYA}$ 10
$\overline{SYNCA}$ 11
RxDA 12
$\overline{RxCA}$ 13
$\overline{TxCA}$ 14
TxDA 15
$\overline{DTRA}$ 16
$\overline{RTSA}$ 17
$\overline{CTSA}$ 18
$\overline{DCDA}$ 19
CLOCK 20
40 D0
39 D2
38 D4
37 D6
36 $\overline{IORQ}$
35 $\overline{CE}$
34 B/$\overline{A}$
33 C/$\overline{D}$
32 $\overline{RD}$
31 GND
30 $\overline{W/RDYB}$
29 $\overline{SYNCB}$
28 RxDB
27 $\overline{RxTxCB}$
26 TxDB
25 $\overline{DTRB}$
24 $\overline{RTSB}$
23 $\overline{CTSB}$
22 $\overline{CCDB}$
21 $\overline{RESET}$
System Data Bus

TOP VIEW

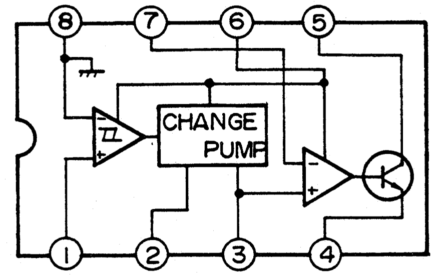
– LM565CN –

Phase Locked Loop


−Vcc ①
INPUT ②
INPUT ③
VCO OUTPUT ④
Phase Comparater VCO Input ⑤
Reference Output ⑥
VCO Control Voltage ⑦
⑭ NC
⑬ NC
⑫ NC
⑪ NC
⑩ +Vcc
⑨ Timing Capacitor
⑧ Timing Registor
PHASE DETECTOR
VCO
AMP

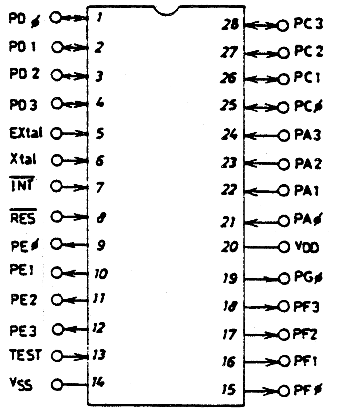
– LM2907N-8 –

Frequency to Voltage Converter

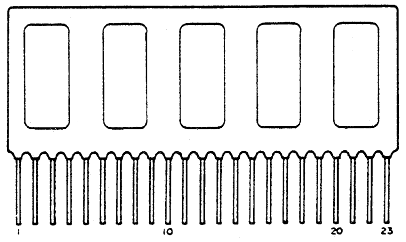

⑧ ⑦ ⑥ ⑤
CHANGE PUMP
① ② ③ ④

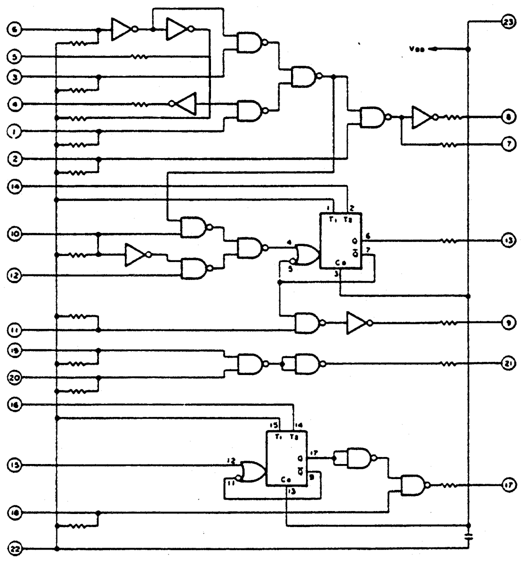
– LM6416E-1985 –

Single-Chip 4-Bit Microcomputer


PD ∅ 1
PD 1 2
PD 2 3
PD 3 4
EXtal 5
Xtal 6
INT 7
RES 8
PE∅ 9
PE1 10
PE2 11
PE3 12
TEST 13
VSS 14
28 PC3
27 PC2
26 PC1
25 PC∅
24 PA3
23 PA2
22 PA1
21 PA∅
20 VDD
19 PG∅
18 PF3
17 PF2
16 PF1
15 PF∅

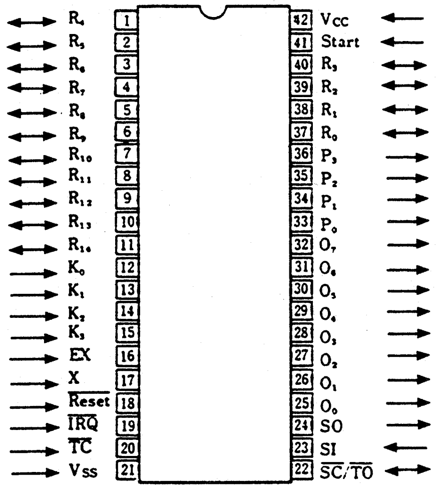
– MCM1065 –




Vss
23
8
7
13
9
21
17

– MB88501-382L –

4-Bit One-Chip Microcomputer

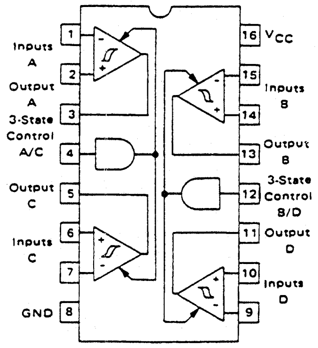

R4 1
R5 2
R6 3
R7 4
R8 5
R9 6
R10 7
R11 8
R12 9
R13 10
R14 11
K0 12
K1 13
K2 14
K3 15
EX 16
X 17
Reset 18
IRQ 19
TC 20
Vss 21
42 Vcc
41 Start
40 R3
39 R2
38 R1
37 R0
36 P3
35 P2
34 P1
33 P0
32 O7
31 O6
30 O5
29 O4
28 O3
27 O2
26 O1
25 O0
24 SO
23 SI
22 SC/TO

TOP VIEW

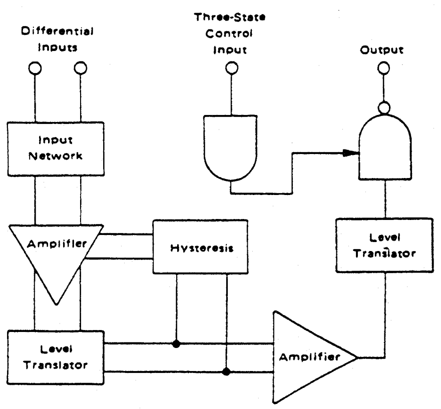
– MC3486P –

Quad RS-422/3 Line Receiver with Three-State Outputs

PIN CONNECTIONS


Inputs A
Output A
3-State Control A/C
Output C
Inputs C
GND
Vcc
Inputs B
Output B
3-State Control B/D
Output D
Inputs D

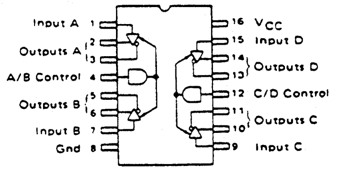
RECEIVER CHAIN BLOCK DIAGRAM


Differential Inputs
Three-State Control Input
Output
Input Network
Amplifier
Hysteresis
Level Translator
Level Translator
Amplifier

– MC3487P –

Quad RS-422 Line Driver with Three-State Outputs

PIN CONNECTIONS

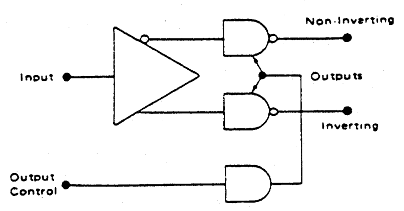

Input A 1
Outputs A 2 3
A/B Control 4
Outputs B 5 6
Input B 7
Gnd 8
16 Vcc
15 Input D
14 13 Outputs D
12 C/D Control
11 10 Outputs C
9 Input C

TRUTH TABLE

Input	Control Input	Non-Inverting Output	Inverting Output
H	H	H	L
L	H	L	H
X	L	Z	Z

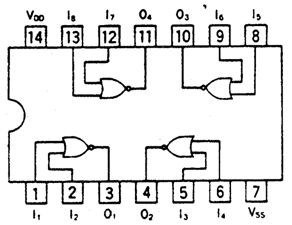
L = Low Logic State
H = High Logic State
X = Irrelevant
Z = Third-State (High Impedance)

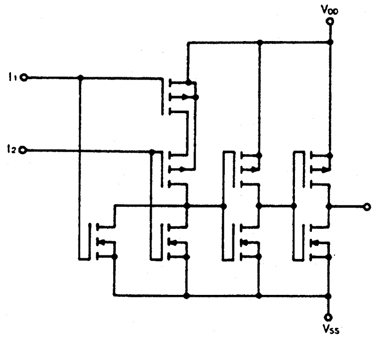
DRIVER BLOCK DIAGRAM


Non-Inverting
Outputs
Inverting
Input
Output Control

– MC14075BCP –

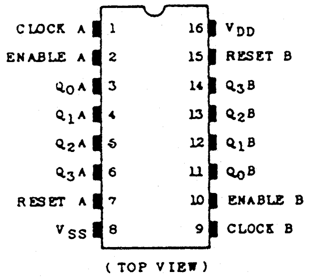
Triple 3-Input OR Gate

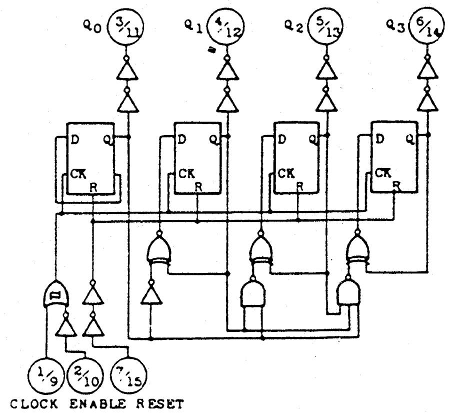

VDD I8 I7 O3 O2 I6 I5
14 13 12 11 10 9 8
1 2 3 4 5 6 7
I1 I2 O1 O2 I3 I4 VSS


VDD
I1
I2
O1
VSS

– MC14520BCP –

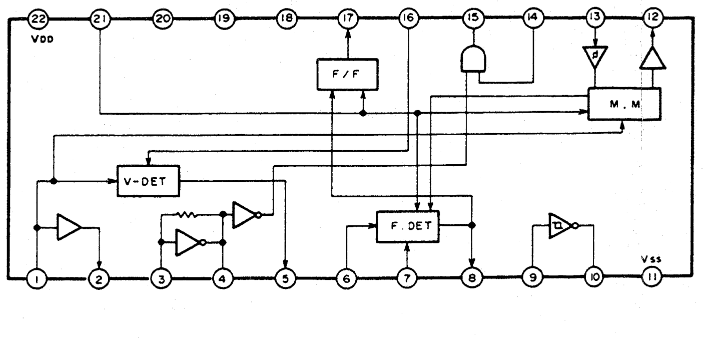
Dual Binary Up Counter


CLOCK A 1
ENABLE A 2
Q0A 3
Q1A 4
Q2A 5
Q3A 6
RESET A 7
VSS 8
16 VDD
15 RESET B
14 Q3B
13 Q2B
12 Q1B
11 Q0B
10 ENABLE B
9 CLOCK B
(TOP VIEW)


Q0 3/11
Q1 4/12
Q2 5/13
Q3 6/14
D Q
CK R
1/9 2/10 7/15
CLOCK ENABLE RESET

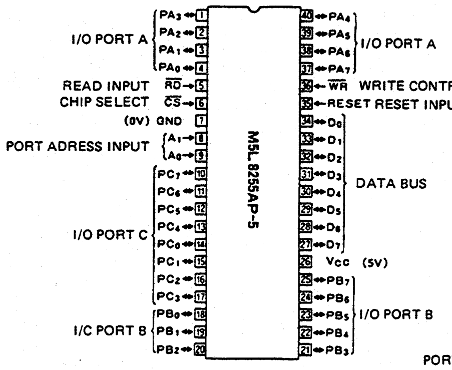
– MN50005JVE –

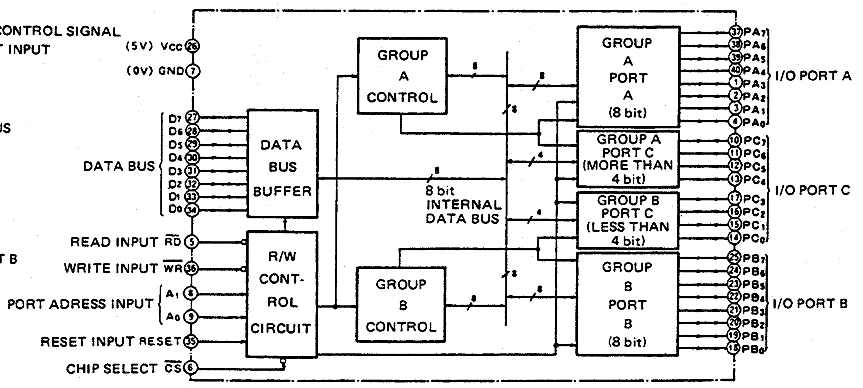
500-Gate CMOS Gate Array


22 21 20 19 18 17 16 15 14 13 12
VDD
F/F
M.M
V-DET
F DET
VSS
1 2 3 4 5 6 7 8 9 10 11

– M5L8255AP-5 –

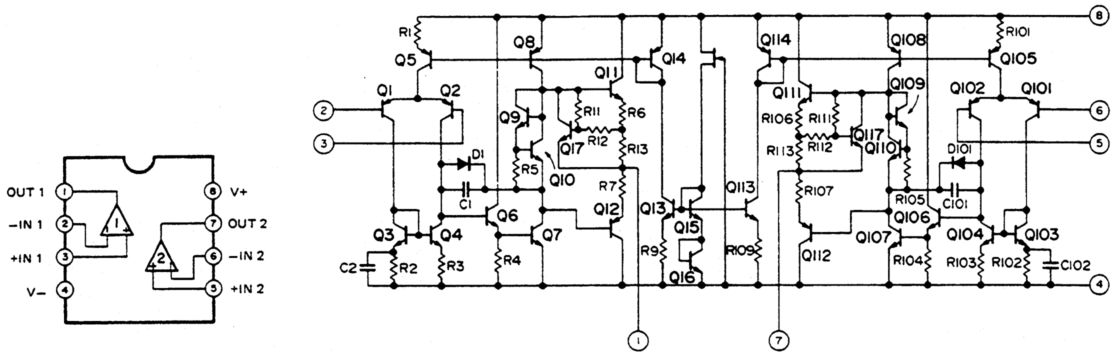
Programmable Peripheral Interface


I/O PORT A
PA3 1
PA2 2
PA1 3
PA0 4
READ INPUT RD 5
CHIP SELECT CS 6
(0V) GND 7
PORT ADRESS INPUT A1 8
A0 9
I/O PORT C
PC7 10
PC6 11
PC5 12
PC4 13
PC0 14
PC1 15
PC2 16
PC3 17
I/C PORT B
PB0 18
PB1 19
PB2 20
M5L8255AP-5
40 PA4
39 PA5
38 PA6
37 PA7
I/O PORT A
36 WR WRITE CONTROL SIGNAL
35 RESET RESET INPUT
34 D0
33 D1
32 D2
31 D3
30 D4
29 D5
28 D6
27 D7
DATA BUS
26 Vcc (5V)
25 PB7
24 PB6
23 PB5
22 PB4
21 PB3
I/O PORT B


(5V) Vcc 26
(0V) GND 7
DATA BUS
D7 27
D6 28
D5 29
D4 30
D3 31
D2 32
D1 33
D0 34
READ INPUT RD 5
WRITE INPUT WR 36
PORT ADRESS INPUT A1 8
A0 9
RESET INPUT RESET 35
CHIP SELECT CS 6
DATA BUS BUFFER
R/W CONT-ROL CIRCUIT
GROUP A CONTROL
GROUP B CONTROL
8 bit INTERNAL DATA BUS
8
4
GROUP A PORT A (8 bit)
GROUP A PORT C (MORE THAN 4 bit)
GROUP B PORT C (LESS THAN 4 bit)
GROUP B PORT B (8 bit)
37 PA7
38 PA6
39 PA5
40 PA4
1 PA3
2 PA2
3 PA1
4 PA0
I/O PORT A
10 PC7
11 PC6
12 PC5
13 PC4
17 PC3
16 PC2
15 PC1
14 PC0
I/O PORT C
25 PB7
24 PB6
23 PB5
22 PB4
21 PB3
20 PB2
19 PB1
18 PB0
I/O PORT B

– M5216P –

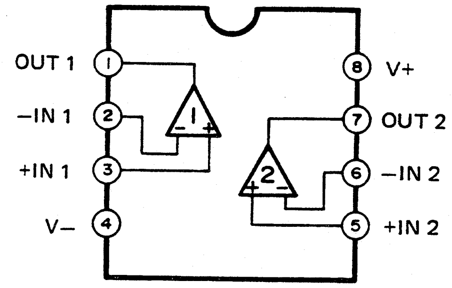
Dual Operational Amplifier



OUT 1
–IN 1
+IN 1
V–
V+
OUT 2
–IN 2
+IN 2
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
Q17
R1
R2
R3
R4
R5
R6
R7
R9
R11
R12
R13
D1
C1
C2
Q101
Q102
Q103
Q104
Q105
Q106
Q107
Q108
Q109
Q110
Q111
Q112
Q113
Q114
Q117
R101
R102
R103
R104
R105
R106
R107
R109
R111
R112
R113
D101
C101
C102

– M5218P –

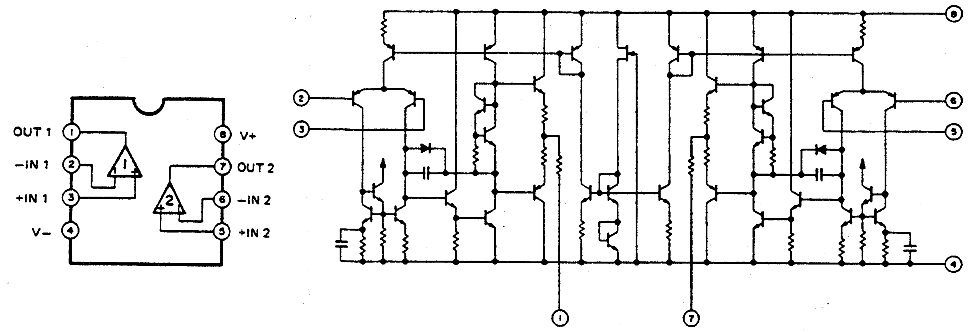
Dual Low Noise Oprational Amplifier



OUT 1
–IN 1
+IN 1
V–
V+
OUT 2
–IN 2
+IN 2

– M5220P –

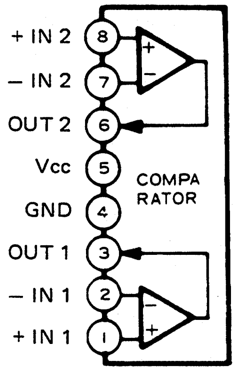
Dual Low Noise Operational Amplifier



OUT 1
–IN 1
+IN 1
V–
V+
OUT 2
–IN 2
+IN 2

– M51207L –

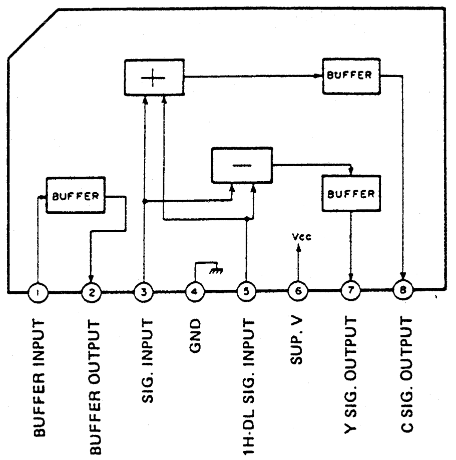
Dual Comparator



+ IN 2
– IN 2
OUT 2
Vcc
GND
OUT 1
– IN 1
+ IN 1
COMPA RATOR

– M51386L –

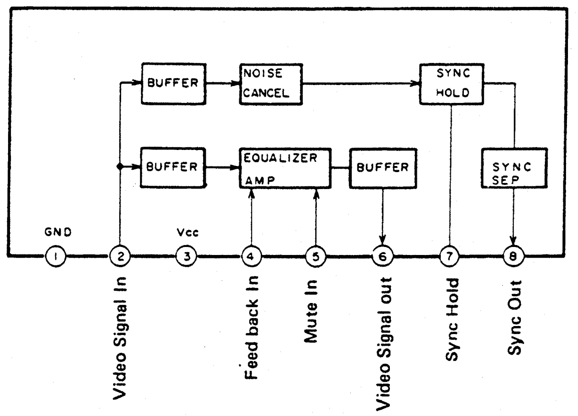
Comb Filter



BUFFER
BUFFER
BUFFER
Vcc
BUFFER INPUT
BUFFER OUTPUT
SIG. INPUT
GND
1H-DL SIG. INPUT
SUP. V
Y SIG. OUTPUT
C SIG. OUTPUT

– M51490L –

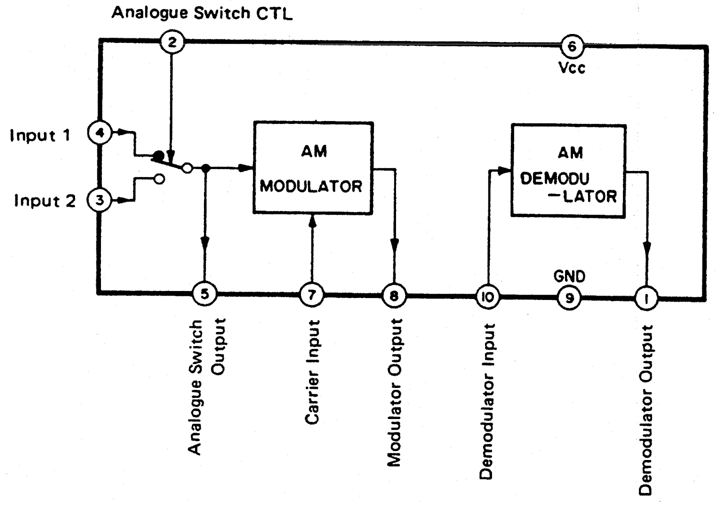
Video Equalizer



BUFFER
NOISE CANCEL
SYNC HOLD
BUFFER
EQUALIZER AMP
BUFFER
SYNC SEP
GND
Vcc
Video Signal In
Feed back In
Mute In
Video Signal out
Sync Hold
Sync Out

– M51681L –

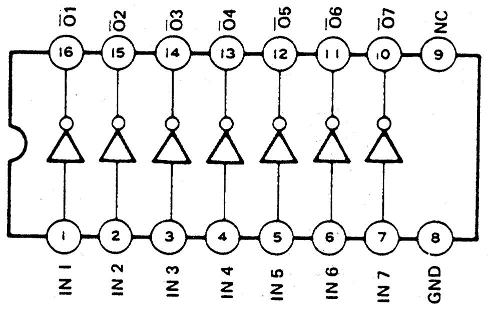
Analogue Switch/AM Modulator/AM Demodulator



Analogue Switch CTL
Vcc
Input 1
Input 2
AM MODULATOR
AM DEMODU –LATOR
GND
Analogue Switch Output
Carrier Input
Modulator Output
Demodulator Input
Demodulator Output

– M54519P –

7-Unit 400 mA Darlington Transistor Array



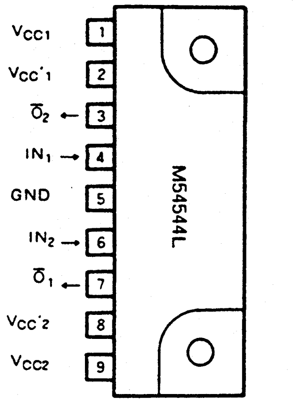
Ō1
Ō2
Ō3
Ō4
Ō5
Ō6
Ō7
NC
IN 1
IN 2
IN 3
IN 4
IN 5
IN 6
IN 7
GND

– M54544L –

Bi-Directional Motor Driver With Brake Function

TRUTH TABLE

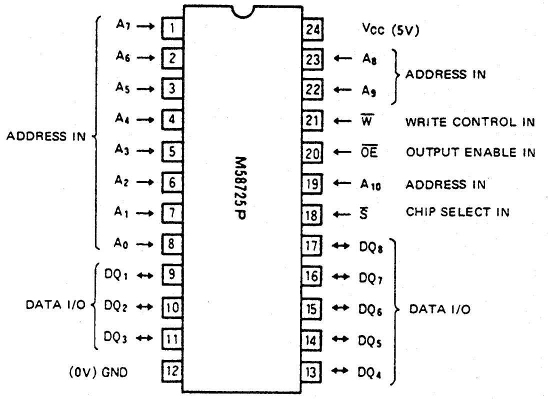
INPUT		OUTPUT	
IN_1	IN_2	$\bar{O}_1$	$\bar{O}_2$
L	L	"OFF" state	"OFF" state
H	L	H	L
L	H	L	H
H	H	L	L



Vcc1
Vcc'1
Ō2
IN1
GND
IN2
Ō1
Vcc'2
Vcc2
M54544L

– M58725P –

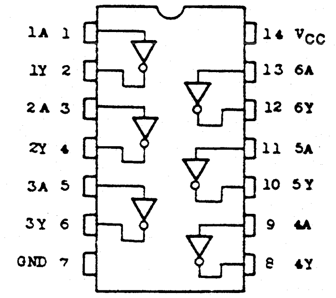
16384-Bit (2048-Word by 8-Bit)
Static RAM



ADDRESS IN
A7
A6
A5
A4
A3
A2
A1
A0
DATA I/O
DQ1
DQ2
DQ3
(0V) GND
Vcc (5V)
A8
A9
ADDRESS IN
W̄
WRITE CONTROL IN
ŌĒ
OUTPUT ENABLE IN
A10
ADDRESS IN
S̄
CHIP SELECT IN
DQ8
DQ7
DQ6
DQ5
DQ4
DATA I/O
M58725P

– M74LS04P –

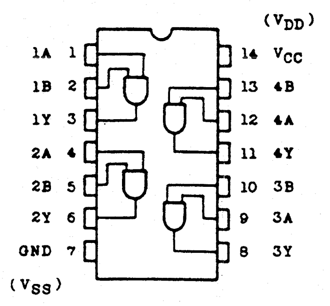
Hex Inverter



1A
1Y
2A
2Y
3A
3Y
GND
Vcc
6A
6Y
5A
5Y
4A
4Y

– M74LS08P –

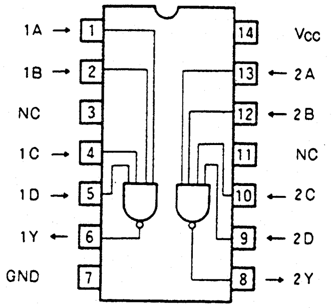
Quad 2-Input AND Gate



(VDD)
1A
1B
1Y
2A
2B
2Y
GND
(VSS)
Vcc
4B
4A
4Y
3B
3A
3Y

– M74LS20P –

Dual 4-Input Positive NAND Gate

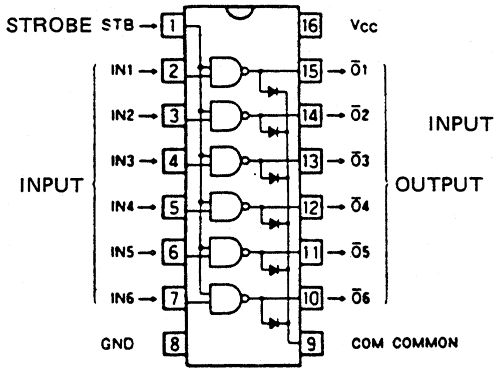


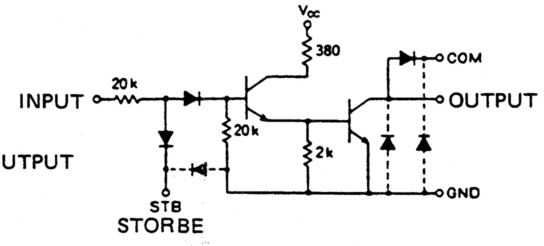
1A
1B
NC
1C
1D
1Y
GND
Vcc
2A
2B
NC
2C
2D
2Y

A	N	Y
L	L	H
H	L	H
L	H	H
H	H	L

N=B·C·D

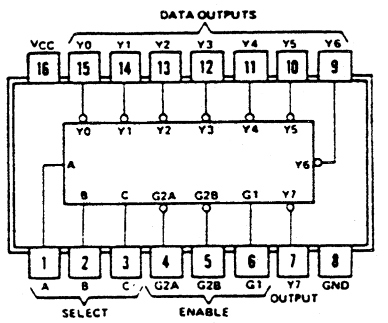
– NJM2903D –


STROBE STB 1
16 Vcc
IN1 2
15 Ō1
IN2 3
14 Ō2
IN3 4
13 Ō3
INPUT
OUTPUT
IN4 5
12 Ō4
IN5 6
11 Ō5
IN6 7
10 Ō6
GND 8
9 COM COMMON


Vcc
380
COM
OUTPUT
INPUT
20k
20k
2k
STB
STORBE
GND

– SN74LS138N –

Decoders/Demultiplexers


DATA OUTPUTS
VCC Y0 Y1 Y2 Y3 Y4 Y5 Y6
16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
A B C G2A G2B G1 Y7 GND
SELECT
ENABLE
OUTPUT

FUNCTION TABLE

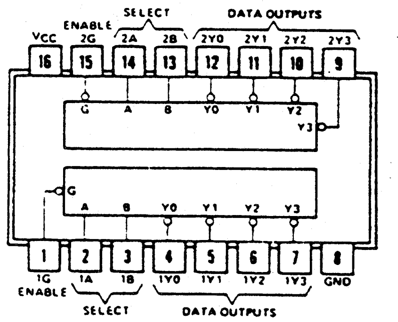
INPUTS					OUTPUTS							
ENABLE		SELECT										
G1	G2	C	B	A	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7
X	H	X	X	X	H	H	H	H	H	H	H	H
L	X	X	X	X	H	H	H	H	H	H	H	H
H	L	L	L	L	L	H	H	H	H	H	H	H
H	L	L	L	H	H	L	H	H	H	H	H	H
H	L	L	H	L	H	H	L	H	H	H	H	H
H	L	L	H	H	H	H	H	L	H	H	H	H
H	L	H	L	L	H	H	H	H	L	H	H	H
H	L	H	L	H	H	H	H	H	H	L	H	H
H	L	H	H	L	H	H	H	H	H	H	L	H
H	L	H	H	H	H	H	H	H	H	H	H	L

*G2 = G2A + G2B

H = high level, L = low level, X = irrelevant

– SN74LS139N –

Decoders/Demultiplexers


SELECT
DATA OUTPUTS
VCC ENABLE 2G 2A 2B 2Y0 2Y1 2Y2 2Y3
16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
1G ENABLE 1A 1B 1Y0 1Y1 1Y2 1Y3 GND
SELECT
DATA OUTPUTS

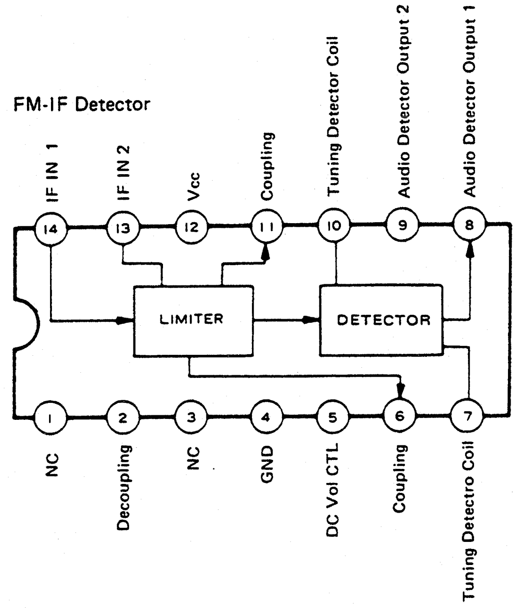
FUNCTION TABLE

INPUTS			OUTPUTS			
ENABLE	SELECT					
G	B	A	Y0	Y1	Y2	Y3
H	X	X	H	H	H	H
L	L	L	L	H	H	H
L	L	H	H	L	H	H
L	H	L	H	H	L	H
L	H	H	H	H	H	L

H = high level, L = low level, X = irrelevant

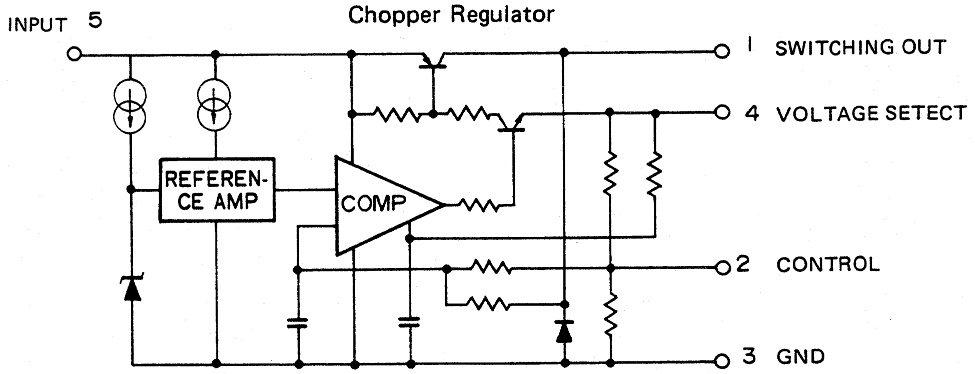
– SN76670N –

FM-IF Detector


FM-IF Detector
IF IN 1
IF IN 2
Vcc
Coupling
Tuning Detector Coil
Audio Detector Output 2
Audio Detector Output 1
14 13 12 11 10 9 8
LIMITER
DETECTOR
1 2 3 4 5 6 7
NC
Decoupling
NC
GND
DC Vol CTL
Coupling
Tuning Detectro Coil

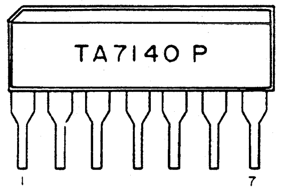
– STR2012A –

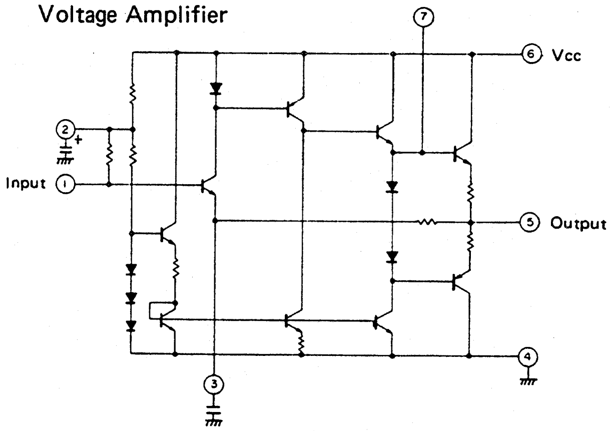
Chopper Regulator


INPUT 5
1 SWITCHING OUT
4 VOLTAGE SETECT
REFEREN-CE AMP
COMP
2 CONTROL
3 GND

– TA7140BP –
– TA7140P –

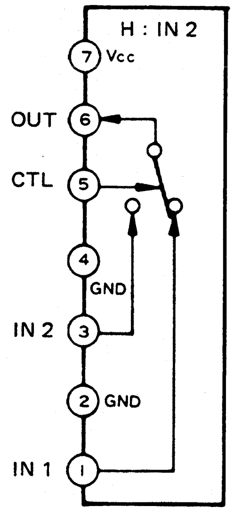
Voltage Amplifier




7
6 Vcc
2
Input 1
5 Output
3
4

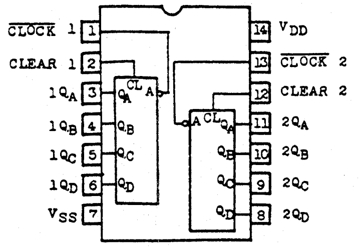
– TA7347P –

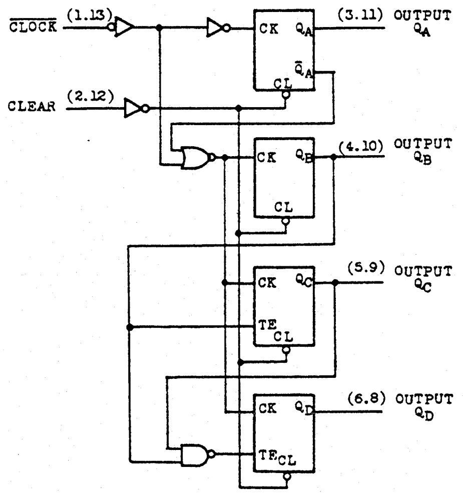
2-Input Switch


H : IN 2
7 Vcc
OUT 6
CTL 5
4 GND
IN 2 3
2 GND
IN 1 1

– TC40H393P –

Dual 4-Bit Binary Counter


CLOCK 1 1
CLEAR 1 2
1QA 3
1QB 4
1QC 5
1QD 6
VSS 7
14 VDD
13 CLOCK 2
12 CLEAR 2
11 2QA
10 2QB
9 2QC
8 2QD

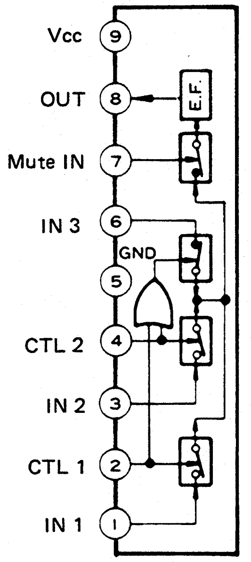

CLOCK (1.13)
CLEAR (2.12)
CK QA
CL
(3.11) OUTPUT QA
CK QB
CL
(4.10) OUTPUT QB
CK QC
TE CL
(5.9) OUTPUT QC
CK QD
TE CL
(6.8) OUTPUT QD

COUNT SEQUENCE

COUNT	OUTPUT			
	Q_A	Q_B	Q_C	Q_D
0	L	L	L	L
1	H	L	L	L
2	L	H	L	L
3	H	H	L	L
4	L	L	H	L
5	H	L	H	L
6	L	H	H	L
7	H	H	H	L
8	L	L	L	H
9	H	L	L	H
10	L	H	L	H
11	H	H	L	H
12	L	L	H	H
13	H	L	H	H
14	L	H	H	H
15	H	H	H	H

– TA7348P –

3-Input Switch

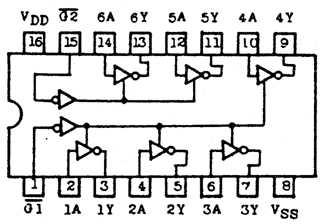

Vcc 9
OUT 8
E.F.
Mute IN 7
IN 3 6
GND 5
CTL 2 4
IN 2 3
CTL 1 2
IN 1 1

CTL(1)	CTL(2)	MUTE IN	OUT
H	L	L	IN1
L	H	L	IN2
H	L	L	IN3
L	H	L	※
※	※	H	NO

※ : Don't Care

– TC40H368P –

Hex Bus Buffer Inverted 3-State Output

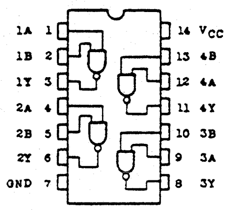

VDD Ō2 6A 6Y 5A 5Y 4A 4Y
16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
Ō1 1A 1Y 2A 2Y 3A 3Y VSS

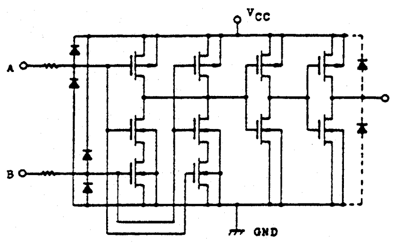
DISABLE INPUT	INPUT	OUTPUT
L	L	H
L	H	L
H	*	HZ

HZ = HIGH IMPEDANCE
* = Don't care

– TC74HC00P –

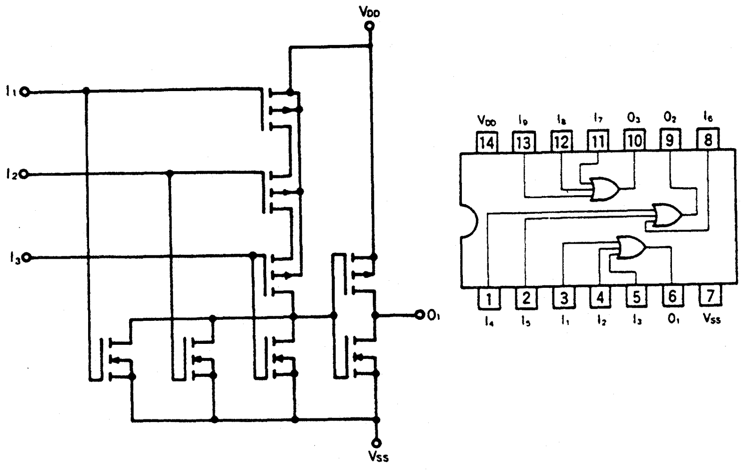
Quad 2-Input NAND Gate


1A 1
1B 2
1Y 3
2A 4
2B 5
2Y 6
GND 7
14 Vcc
13 4B
12 4A
11 4Y
10 3B
9 3A
8 3Y



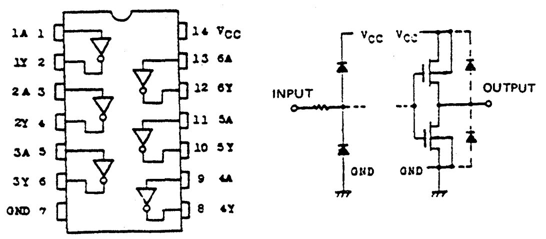
– TC74HC02P –

Quad 2-Input NOR Gate


VDD
I1
I2
I3
O1
VSS
VDD I6 I5 I7 O3 O2 I6
14 13 12 11 10 9 8
1 2 3 4 5 6 7
I4 I5 I1 I2 I3 O1 VSS

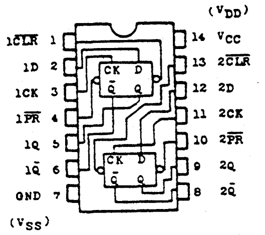
– TC74HC04P –

Hex Inverter


1A 1
1Y 2
2A 3
2Y 4
3A 5
3Y 6
GND 7
14 VCC
13 6A
12 6Y
11 5A
10 5Y
9 4A
8 4Y
VCC
INPUT
OUTPUT
GND

– TC74HC74P –

Dual D Flip-Flop with Preset and Clear

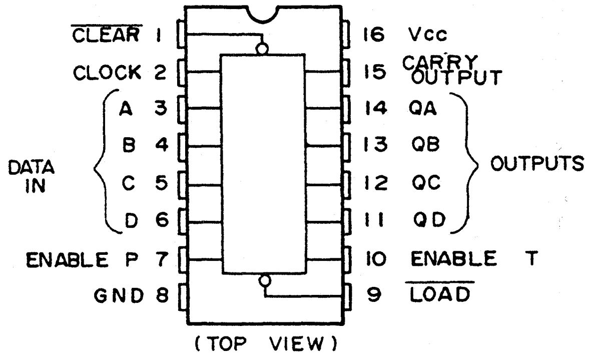

(VDD)
1CLR 1
1D 2
1CK 3
1PR 4
1Q 5
1Q̄ 6
GND 7
(VSS)
14 VCC
13 2CLR
12 2D
11 2CK
10 2PR
9 2Q
8 2Q̄
CK D
Q̄ Q

INPUTS				OUTPUTS		FUNCTION
$\overline{CLR}$	$\overline{PR}$	D	CK	Q	$\bar{Q}$	
L	H	•	•	L	H	CLEAR
H	L	•	•	H	L	PRESET
L	L	•	•	H	H	—
H	H	L	_⌠‾	L	H	—
H	H	H	_⌠‾	H	L	—
H	H	•	‾⌡_	Qn	$\bar{Q}$n	NO CHANGE

• Don't care

– TC74HC163P –

Synchronous Presettable 4-Bit Counter Binary, Synchronous Clear


CLEAR 1
CLOCK 2
A 3
B 4
C 5
D 6
DATA IN
ENABLE P 7
GND 8
16 Vcc
15 CARRY OUTPUT
14 QA
13 QB
12 QC
11 QD
OUTPUTS
10 ENABLE T
9 LOAD
(TOP VIEW)

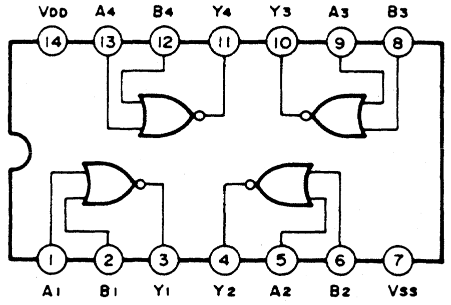
TRUTH TABLE

INPUTS					OUTPUTS				FUNCTION
$\overline{CLR}$	$\overline{LD}$	PE	TE	CK	Q_A	Q_B	Q_C	Q_D	
L	✱	✱	✱		L	L	L	L	REST TO "0"
H	L	✱	✱		A	B	C	D	PRESET DATA
H	H	✱	L		NO CHANGE				NO COUNT
H	H	L	✱		NO CHANGE				NO COUNT
H	H	H	H		COUNT UP				COUNT
✱	✱	✱	✱		NO CHANGE				NO COUNT

Note ✱ : Don't Care
A, B, C, D : Logic Level of Data Inputs
Carry : $CARRY = TE \cdot Q_A \cdot \overline{Q_B} \cdot \overline{Q_C} \cdot Q_D$ ……… (TC74HC160/162)
$CARRY = TE \cdot Q_A \cdot Q_B \cdot Q_C \cdot Q_D$ ……… (TC74HC161/163)

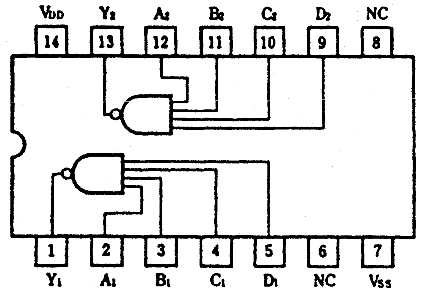
– TC4001BP –

Quad 2-Input Positive NOR Gates


VDD A4 B4 Y4 Y3 A3 B3
14 13 12 11 10 9 8
1 2 3 4 5 6 7
A1 B1 Y1 Y2 A2 B2 Vss

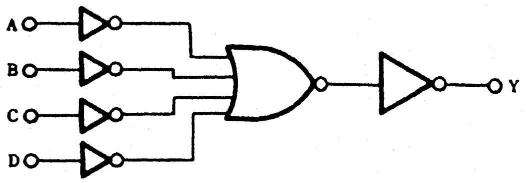
– TC4012BP –

Dual 4-Input NAND Gate


VDD Y2 A2 B2 C2 D2 NC
14 13 12 11 10 9 8
1 2 3 4 5 6 7
Y1 A1 B1 C1 D1 NC Vss

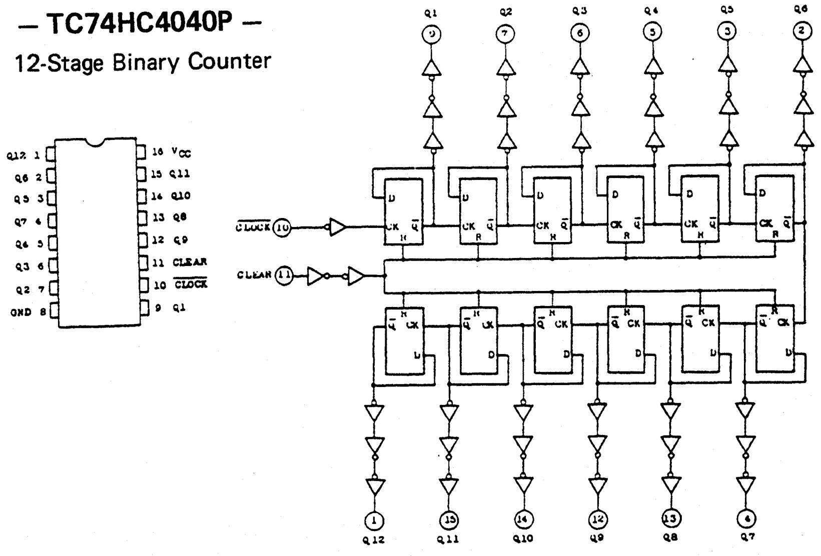
NC=No Connection

Logic Dioagram (1/2)



– TC74HC4040P –

12-Stage Binary Counter

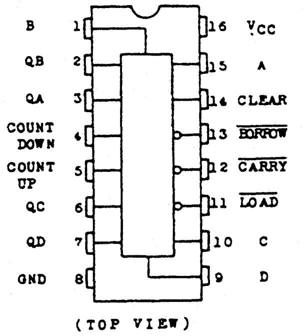

Q12 1
Q6 2
Q5 3
Q7 4
Q4 5
Q3 6
Q2 7
GND 8
16 VCC
15 Q11
14 Q10
13 Q8
12 Q9
11 CLEAR
10 CLOCK
9 Q1
Q1 Q2 Q3 Q4 Q5 Q6
CLOCK
CLEAR
Q12 Q11 Q10 Q9 Q8 Q7

– TC74HC193P –

Synchronous Up/Down Binary Counter

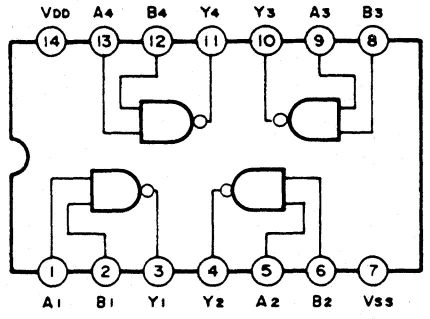
COUNT UP	COUNT DOWN	$\overline{LOAD}$	CLEAR	FUNCTION
_⌠‾	H	H	L	COUNT UP
‾⌡_	H	H	L	NO COUNT
H	_⌠‾	H	L	COUNT DOWN
H	‾⌡_	H	L	NO COUNT
X	X	.L	L	PRESET
X	X	X	H	RESET

X : DON'T CARE


B 1
QB 2
QA 3
COUNT DOWN 4
COUNT UP 5
QC 6
QD 7
GND 8
16 Vcc
15 A
14 CLEAR
13 BORROW
12 CARRY
11 LOAD
10 C
9 D
(TOP VIEW)

– TC4011BP –

Quad 2-Input Positive NAND Gates

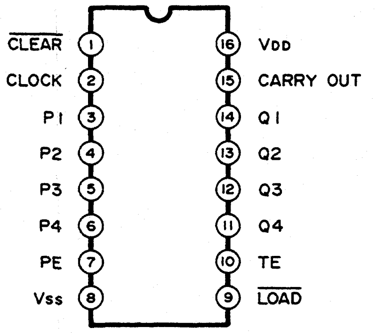

VDD A4 B4 Y4 Y3 A3 B3
14 13 12 11 10 9 8
1 2 3 4 5 6 7
A1 B1 Y1 Y2 A2 B2 Vss

– TC40161BP –

4-Bit Synchrohous Binary Counter

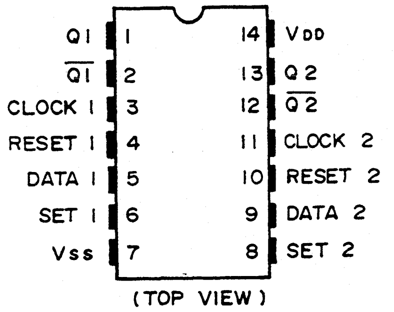
INPUT									OUTPUT			
CLOCK	$\overline{CLEAR}$	$\overline{LOAD}$	PE	TE	P1	P2	P3	P4	Q1	Q2	Q3	Q4
✡	L	✱	✱	✱	✱	✱	✱	✱	L	L	L	L
△ _⌠‾	H	L	✱	✱	D1	D2	D3	D4	D1	D2	D3	D4
△ _⌠‾	H	H	L	L	✱	✱	✱	✱	•	•	•	•
△ _⌠‾	H	H	L	H	✱	✱	✱	✱	•	•	•	•
△ _⌠‾	H	H	H	L	✱	✱	✱	✱	•	•	•	•
△ _⌠‾	H	H	H	H	✱	✱	✱	✱	COUNT			
△ ‾⌡_	H	✱	✱	✱	✱	✱	✱	✱	•	•	•	•

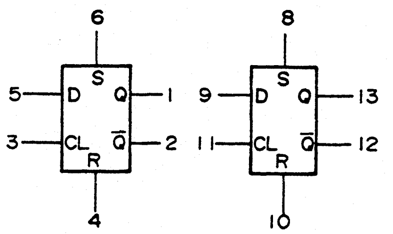
✱ : DON'T CARE
△ : LEVEL CHANGE
• : NO CHANGE
D : DATA"H"or"L"
✡ : DON'T CARE


CLEAR 1
CLOCK 2
P1 3
P2 4
P3 5
P4 6
PE 7
Vss 8
16 VDD
15 CARRY OUT
14 Q1
13 Q2
12 Q3
11 Q4
10 TE
9 LOAD

– TC4013BP –

Dual D-Type Flip Flop


Q1 1
Q̄1 2
CLOCK 1 3
RESET 1 4
DATA 1 5
SET 1 6
Vss 7
14 VDD
13 Q2
12 Q̄2
11 CLOCK 2
10 RESET 2
9 DATA 2
8 SET 2
(TOP VIEW)


6
8
5
D
S
Q
1
9
13
3
CL
Q̄
2
11
12
R
4
10

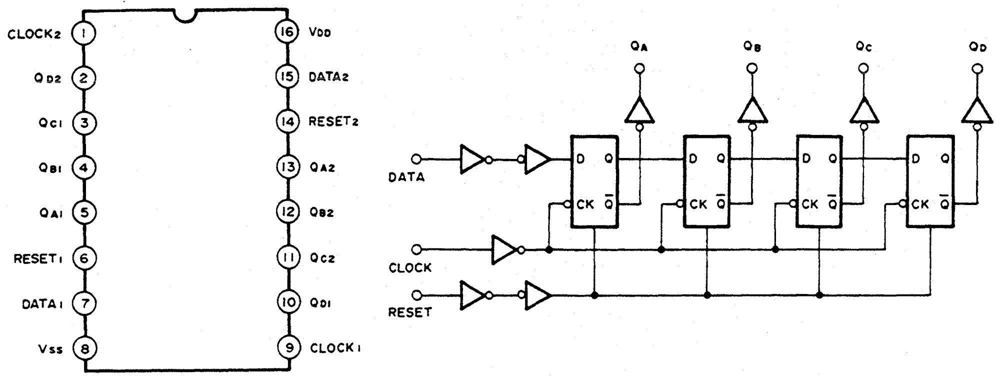
TRUTH TABLE

INPUTS				OUTPUTS	
RESET	SET	DATA	CLOCK△	Qn+1	$\bar{Q}$n+1
L	H	✱	✱	H	L
H	L	✱	✱	L	H
H	H	✱	✱	L	H
L	L	L		L	H
L	L	H		H	L
L	L	✱		Qn•	$\bar{Q}$n•

✱ : Don't Care
△ : Level Change
• : No Change

– TC4015BP –

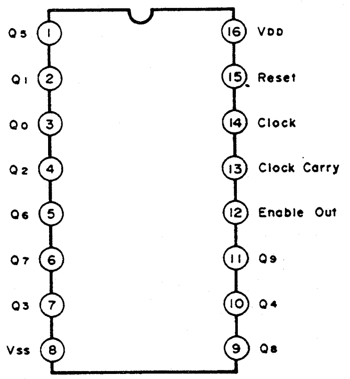
Dual 4-Stage Static Shift Register

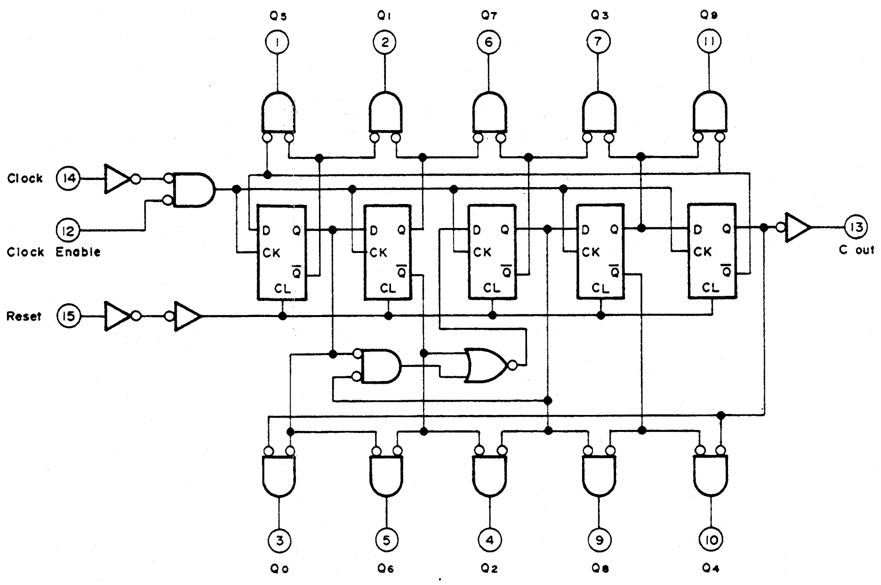

CLOCK2 1
QD2 2
QC1 3
QB1 4
QA1 5
RESET1 6
DATA1 7
Vss 8
16 VDD
15 DATA2
14 RESET2
13 QA2
12 QB2
11 QC2
10 QD1
9 CLOCK1
QA QB QC QD
DATA
CLOCK
RESET
D Q
CK Q̄

4-49

– TC4017BP –

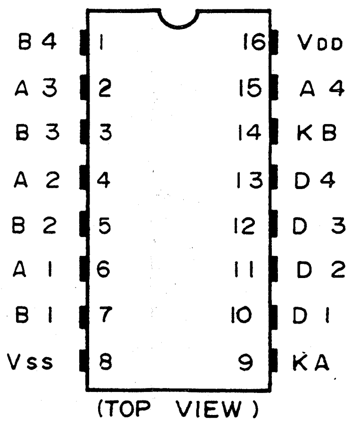
Decade Counter/Divider


Q5 1
Q1 2
Q0 3
Q2 4
Q6 5
Q7 6
Q3 7
Vss 8
16 VDD
15 Reset
14 Clock
13 Clock Carry
12 Enable Out
11 Q9
10 Q4
9 Q8


Q5 1
Q1 2
Q7 6
Q3 7
Q9 11
Clock 14
12
Clock Enable
Reset 15
D Q CK Q̄ CL
13
C out
3 Q0
5 Q6
4 Q2
9 Q8
10 Q4

– TC4019BP –

Quad AND/OR Select Gate


B4 1
A3 2
B3 3
A2 4
B2 5
A1 6
B1 7
Vss 8
16 VDD
15 A4
14 KB
13 D4
12 D3
11 D2
10 D1
9 KA
(TOP VIEW)

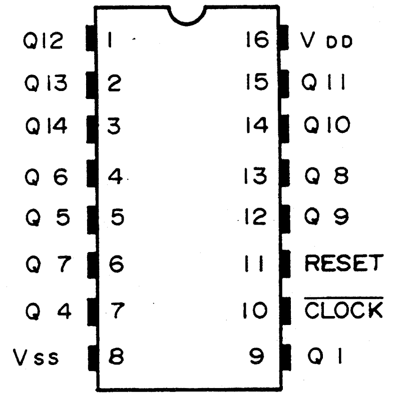
TRUTH TABLE

INPUTS				OUTPUT
KA	KB	A_n	B_n	D_n
H	L	H	*	H
H	L	L	*	L
L	H	*	H	H
L	H	*	L	L
L	L	*	*	L
H	H	L	L	L
H	H	L	H	H
H	H	H	L	H
H	H	H	H	H

L : Low Level
H : High Level
* : Don't Care

– TC4020BP –

14 Stage Ripple-Carry Binary Counter/Dividers


Q12 1
Q13 2
Q14 3
Q6 4
Q5 5
Q7 6
Q4 7
Vss 8
16 VDD
15 Q11
14 Q10
13 Q8
12 Q9
11 RESET
10 CLOCK
9 Q1

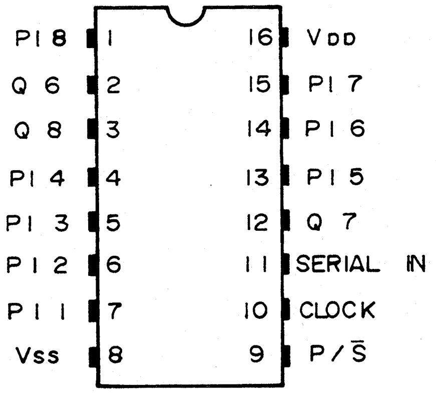
(TOP VIEW)

TRUTH TABLE -

CLOCK△	RESET	OUTPUT STATE
※	H	All Outputs = 'L'
↑	L	No Change
↓	L	Advance to Next State
△ : Level Change, ※ : Don't Care		

– TC4021BP –

8-Stage Static Shift Register
(Asynchronous Parallel Input or Synchronous Serial Input/Serial Output)


PI 8 1
Q6 2
Q8 3
PI 4 4
PI 3 5
PI 2 6
PI 1 7
Vss 8
16 VDD
15 PI 7
14 PI 6
13 PI 5
12 Q7
11 SERIAL IN
10 CLOCK
9 P/S̄

(TOP VIEW)

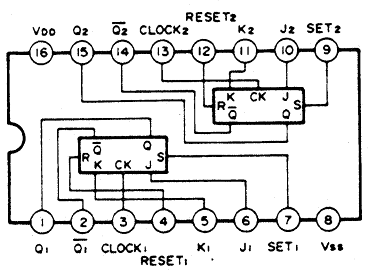
TRUTH TABLE

INPUTS					OUTPUTS △	
CLOCK △△	P/S̄	PI_1	PI_n	SI	Q_1	Q_n
↑	L	※	※	L	L	$Q_n - 1$
↑	L	※	※	H	H	$Q_n - 1$
↓	L	※	※	※	No Change	
※	H	L	L	※	L	L
※	H	L	H	※	L	H
※	H	H	L	※	H	L
※	H	H	H	※	H	H

n : 2 ~ 8
△ : $Q_1 \sim Q_5$ Internal
△△ : Level
※ : Don't Care

– TC4027BP –

Dual J-K Master-Slave Flip-Flop


VDD Q2 Q̄2 CLOCK2 RESET2 K2 J2 SET2
16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
Q1 Q̄1 CLOCK1 RESET1 K1 J1 SET1 Vss

TRUTH TABLE

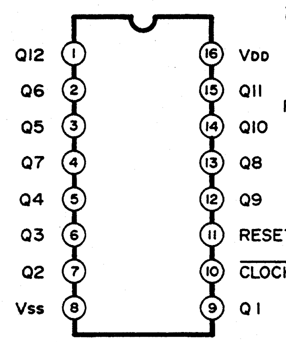
INPUTS					OUTPUTS	
CL	PR	J	K	CP△	Qn+1	Q̄n+1
L	H	※	※	※	H	L
H	L	※	※	※	L	H
H	H	※	※	※	L	H
L	L	L	L	↑	Qn	Q̄n •
L	L	L	H	↑	L	H
L	L	H	L	↑	H	L
L	L	H	H	↑	Q̄n	Qn ••
L	L	※	※	↓	Qn	Q̄n •

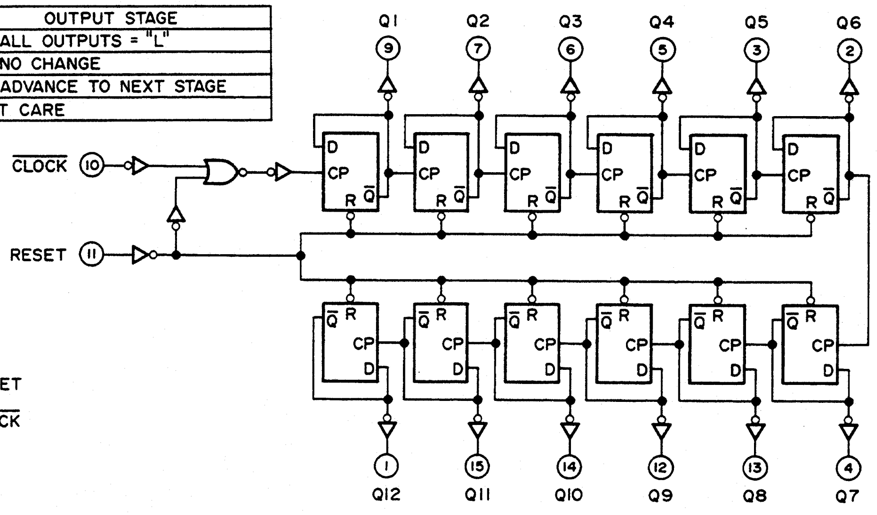
※ Don't Care
△ Level Change
• No Change
•• Change

– TC4040BP –

12-Stage Binary/Ripple Counter

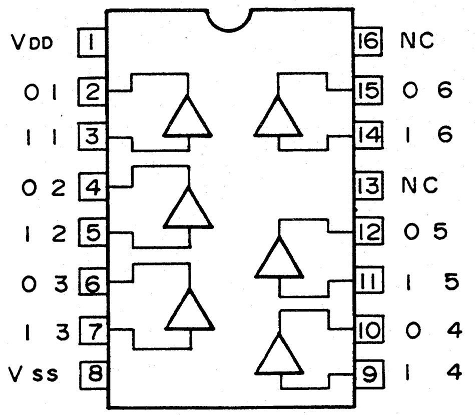
CLOCK △	RESET	OUTPUT STAGE
*	H	ALL OUTPUTS = "L"
↑	H	NO CHANGE
↓	L	ADVANCE TO NEXT STAGE
△ : LEVEL CHANGE. *: DON'T CARE		


Q12 1
Q6 2
Q5 3
Q7 4
Q4 5
Q3 6
Q2 7
Vss 8
16 VDD
15 Q11
14 Q10
13 Q8
12 Q9
11 RESET
10 CLOCK
9 Q1


Q1 9
Q2 7
Q3 6
Q4 5
Q5 3
Q6 2
CLOCK 10
RESET 11
D CP R Q̄
1 Q12
15 Q11
14 Q10
12 Q9
13 Q8
4 Q7

– TC4050BP (UPD4050BC) –

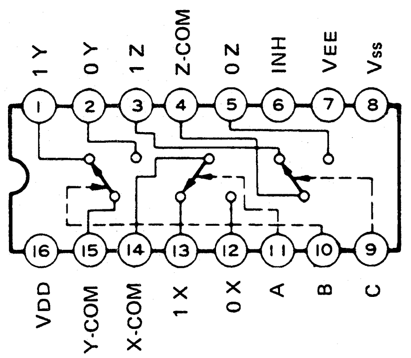
Hex Buffer Converter


VDD 1
O1 2
I1 3
O2 4
I2 5
O3 6
I3 7
Vss 8
16 NC
15 O6
14 I6
13 NC
12 O5
11 I5
10 O4
9 I4

(TOP VIEW)

– TC4053BP –

Triple 2-Channel Multiplexer/Demultiplexer


1Y 1
0Y 2
1Z 3
Z-COM 4
0Z 5
INH 6
VEE 7
Vss 8
VDD 16
Y-COM 15
X-COM 14
1X 13
0X 12
A 11
B 10
C 9

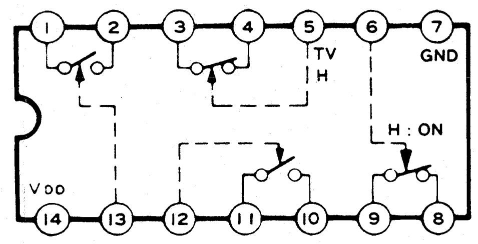
TRUTH TABLE

CONTROL INPUTS				'ON' CHANNEL
INHIBIT	C△	B	A	
L	L	L	L	0X,0Y,0Z
L	L	L	H	1X,0Y,0Z
L	L	H	L	0X,1Y,0Z
L	L	H	H	1X,1Y,0Z
L	H	L	L	0X,0Y,1Z
L	H	L	H	1X,0Y,1Z
L	H	H	L	0X,1Y,1Z
L	H	H	H	1X,1Y,1Z
H	※	※※	※	NONE

※ Don't Care, △ Except TC4052BP

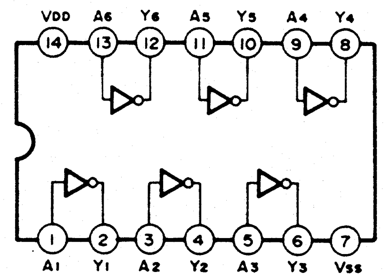
– TC4066BP –

Quad Bilateral Switch


1 2 3 4 5 6 7
GND
TV
H
H : ON
VDD
14 13 12 11 10 9 8

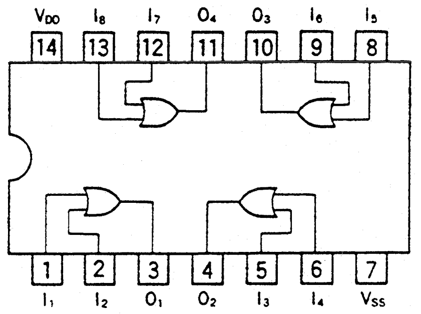
– TC4069UBP (UPD4069UBC) –

Hex Inverter


VDD A6 Y6 A5 Y5 A4 Y4
14 13 12 11 10 9 8
1 2 3 4 5 6 7
A1 Y1 A2 Y2 A3 Y3 Vss

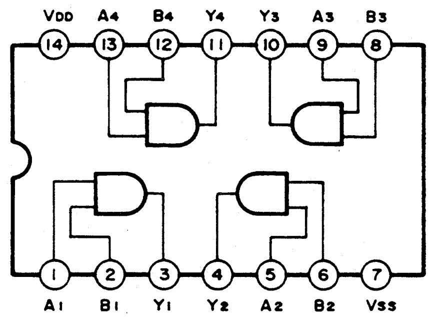
– TC4071BP –

Quad 2-Input OR Gate


VDD I8 I7 O4 O3 I6 I5
14 13 12 11 10 9 8
1 2 3 4 5 6 7
I1 I2 O1 O2 I3 I4 Vss

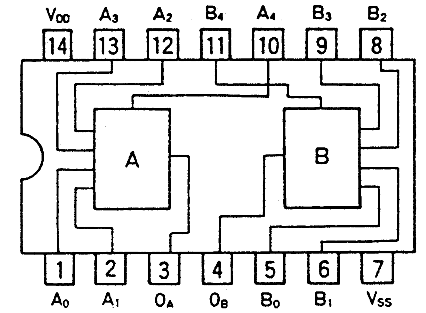
– TC4081BP –

Quad 2-Input AND Gate

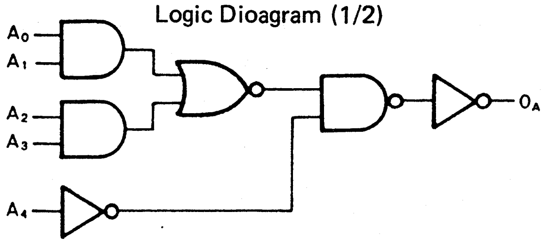

VDD
A4
B4
Y4
Y3
A3
B3
14
13
12
11
10
9
8
1
2
3
4
5
6
7
A1
B1
Y1
Y2
A2
B2
VSS

– TC4085BP –

Dual 2-Wide 2-Input AND-OR-Invert Gate

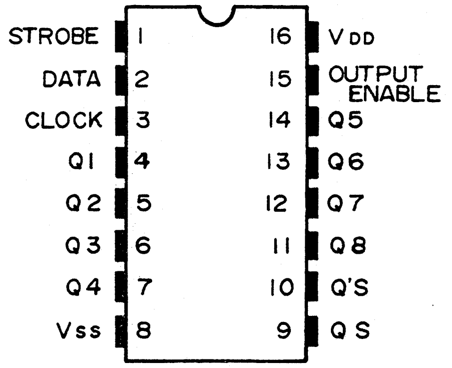

VDD
A3
A2
B4
A4
B3
B2
14
13
12
11
10
9
8
A
B
1
2
3
4
5
6
7
A0
A1
OA
OB
B0
B1
VSS

Logic Dioagram (1/2)


A0
A1
A2
A3
A4
OA

– TC4094BP –

8-Stage Shift-and-Store Busregister


STROBE
DATA
CLOCK
Q1
Q2
Q3
Q4
Vss
1
2
3
4
5
6
7
8
16
15
14
13
12
11
10
9
V DD
OUTPUT ENABLE
Q5
Q6
Q7
Q8
Q'S
QS

(TOP VIEW)

TRUTH TABLE

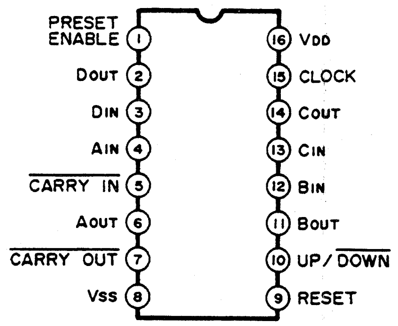
CK	OE	ST	D	PO		SO	
				Q_1	Q_n	Q_S	Q'_S
↑	H	H	L	L	Q_{n-1}	Q_7	NC
↑	H	H	H	H	Q_{n-1}	Q_7	NC
↑	H	L	*	NC	NC	Q_7	NC
↑	L	*	*	HZ	HZ	Q_7	NC
↓	H	*	*	NC	NC	NC	Q_S
↓	L	*	*	HZ	HZ	NC	Q_S

CK = Clock
OE = Output Enable
ST = Strobe
D = Data
PO = Parallel Outputs
SO = Serial Output
* = Don't care
NC = No Change
HZ = High Impedance

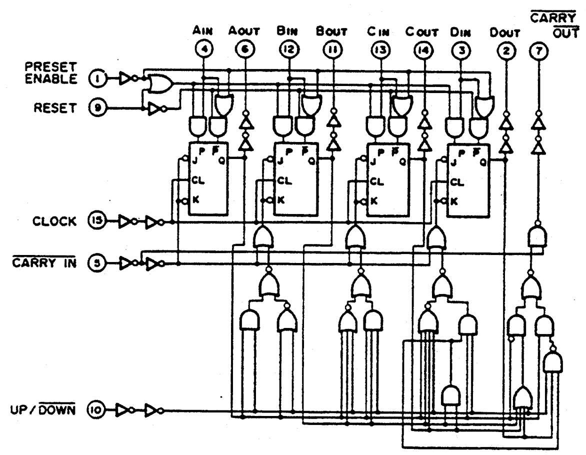
– TC4516BP –

Binary Up/Down Counter

Binary Up/Down Counter


PRESET ENABLE
DOUT
DIN
AIN
CARRY IN
AOUT
CARRY OUT
Vss
1
2
3
4
5
6
7
8
16
15
14
13
12
11
10
9
VDD
CLOCK
COUT
CIN
BIN
BOUT
UP/DOWN
RESET

(TOP VIEW)


AIN
AOUT
BIN
BOUT
CIN
COUT
DIN
DOUT
CARRY OUT
PRESET ENABLE
RESET
CLOCK
CARRY IN
UP/DOWN

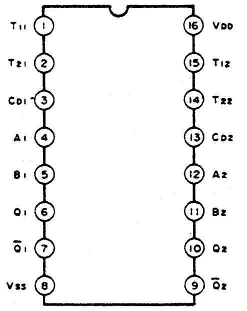
TRUTH TABLE

$\overline{\text{CARRY IN}}$	UP/DOWN	LOAD	CLEAR	FUNCTION
H	※	L	L	NO COUNT
L	H	L	L	UP COUNT
L	L	L	L	DOWN COUNT
※	※	H	L	PRESET
※	※	※	H	CLEAR

※ Don't Care

– TC4528BP –

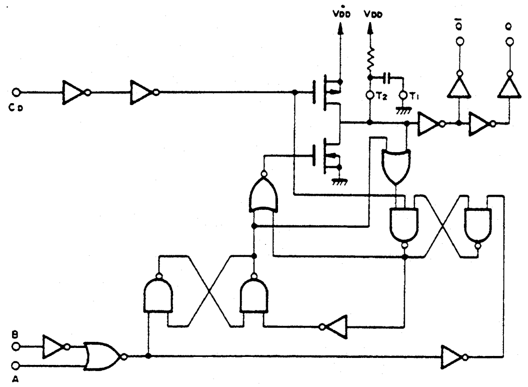
Dual Monostable Multivibrator


T11
T21
CD1
A1
B1
Q1
Q̄1
Vss
1
2
3
4
5
6
7
8
16
15
14
13
12
11
10
9
VDD
T12
T22
CD2
A2
B2
Q2
Q̄2

TRUTH TABLE

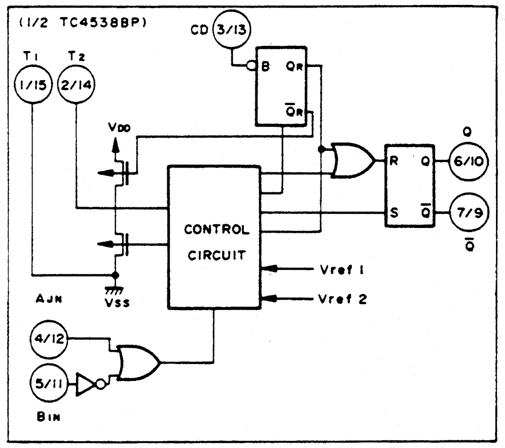
INPUT			OUTPUT		NOTE
A	B	CD	Q	$\overline{Q}$	
↑	H	H	⎍	⊔	OUTPUT PULSE
↑	L	H	L	H	INHIBIT
H	↓	H	L	H	INHIBIT
L	↓	H	⎍	⊔	OUTPUT PULSE
※	※	L	L	H	INHIBIT

※ Don't Care


VDD
VDD
Q̄
Q
T2
T1
CD
B
A

– TC4538BP –

Dual Precision Retriggerable/
Resettable Monostable Multivibrator

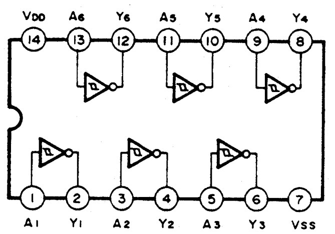

(1/2 TC4538BP)
CD
3/13
T1
T2
1/15
2/14
VDD
B
QR
Q̄R
R
Q
S
Q̄
6/10
7/9
CONTROL CIRCUIT
Vref 1
Vref 2
AIN
VSS
4/12
5/11
BIN

INPUT			OUTPUT		NOTE
AIN	BIN	CD	Q	$\overline{Q}$	
↑	H	H	⎍	⊔	OUTPUT ENABLE
↑	L	H	L	H	INHIBIT
H	↓	H	L	H	INHIBIT
L	↓	H	⎍	⊔	OUTPUT ENABLE
X	X	L	L	H	INHIBIT

X Don't Care

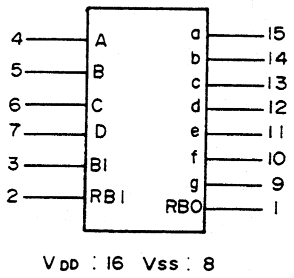
– TC4584BP –

Hex. Schmitt Trigger


VDD
A6
Y6
A5
Y5
A4
Y4
14
13
12
11
10
9
8
1
2
3
4
5
6
7
A1
Y1
A2
Y2
A3
Y3
VSS

– TC5022BP –

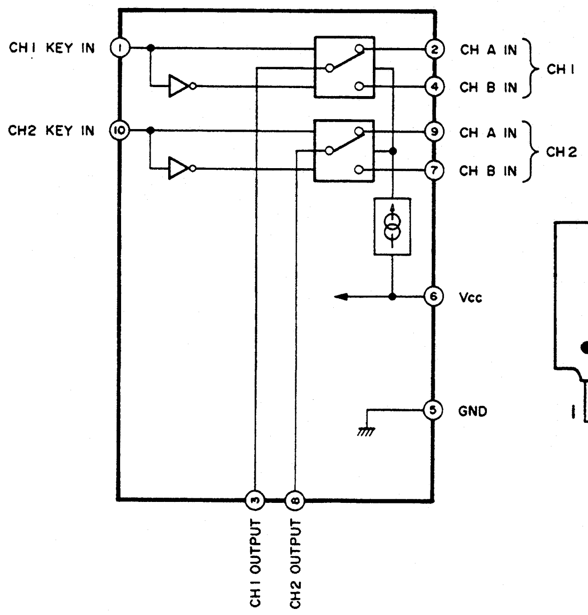
BCD to 7-Segment Decoder/Driver

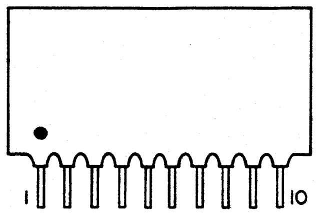

4
5
6
7
3
2
A
B
C
D
BI
RBI
a
b
c
d
e
f
g
RBO
15
14
13
12
11
10
9
1
VDD : 16 Vss : 8

TRUTH TABLE

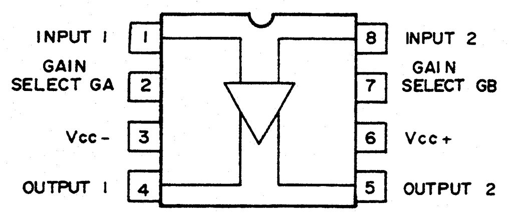
INPUT						OUTPUT							
BI	RBI	A	B	C	D	a	b	c	d	e	f	g	RBO
H	※	※	※	※	※	L	L	L	L	L	L	L	☆
L	H	L	L	L	L	L	L	L	L	L	L	L	H
L	L	L	L	L	L	H	H	H	H	H	H	L	L
L	※	H	L	L	L	L	H	H	L	L	L	L	L
L	※	L	H	L	L	H	H	L	H	H	L	H	L
L	※	H	H	L	L	H	H	H	H	L	L	H	L
L	※	L	L	H	L	L	H	H	L	L	H	H	L
L	※	H	L	H	L	H	L	H	H	L	H	H	L
L	※	L	H	H	L	H	L	H	H	H	H	H	L
L	※	H	H	H	L	H	H	H	L	L	H	L	L
L	※	L	L	L	H	H	H	H	H	H	H	H	L
L	※	H	L	L	H	H	H	H	H	L	H	H	L
L	※	L	H	L	H	H	H	H	H	H	H	L	L
L	※	H	H	L	H	L	H	H	L	L	L	L	L
L	※	L	L	H	H	H	H	L	H	H	L	H	L
L	※	H	L	H	H	H	H	H	H	L	L	H	L
L	※	L	H	H	H	L	H	H	L	L	H	H	L
L	※	H	H	H	H	H	L	H	H	L	H	H	L

– TK15021 –


CH1 KEY IN
1
CH2 KEY IN
10
2
CH A IN
4
CH B IN
CH1
9
CH A IN
7
CH B IN
CH2
6
Vcc
5
GND
CH1 OUTPUT
CH2 OUTPUT

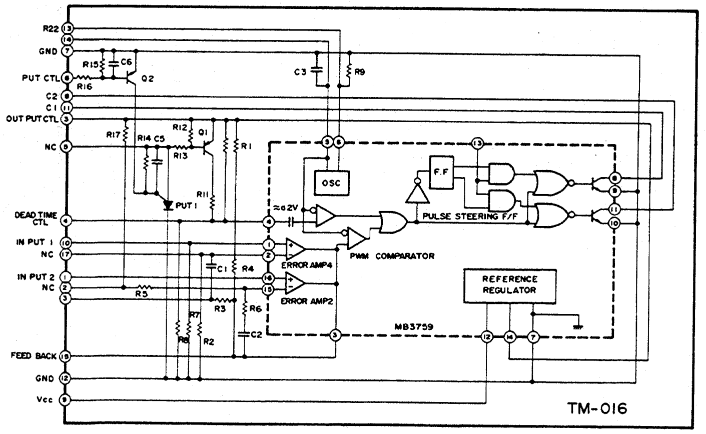


– TL592P –


INPUT 1
GAIN SELECT GA
Vcc −
OUTPUT 1
1
2
3
4
8
7
6
5
INPUT 2
GAIN SELECT GB
Vcc +
OUTPUT 2

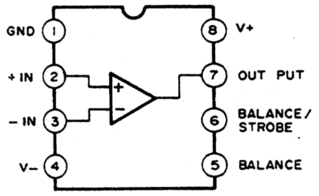
– TM-016 –

Switching Regurator Control Circuit


R22
GND
PUT CTL
C2
C1
OUTPUT CTL
NC
DEAD TIME CTL
IN PUT 1
NC
IN PUT 2
NC
FEED BACK
GND
Vcc
OSC
F.F
PULSE STEERING F/F
PWM COMPARATOR
ERROR AMP1
ERROR AMP2
REFERENCE REGULATOR
MB3759
TM-016

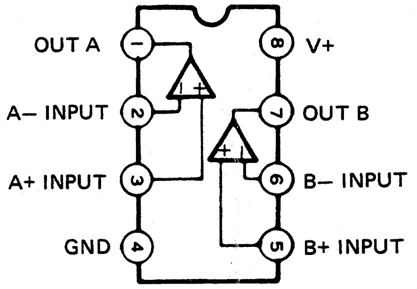
– UPC311C –

Comparator


GND ①
+IN ②
– IN ③
V– ④
⑧ V+
⑦ OUT PUT
⑥ BALANCE/ STROBE
⑤ BALANCE

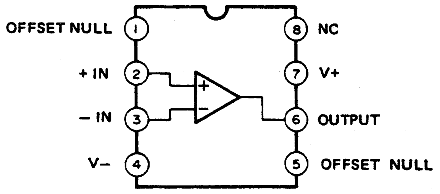
– UPC358C –

Dual Operational Amplifier


OUT A ①
A– INPUT ②
A+ INPUT ③
GND ④
⑧ V+
⑦ OUT B
⑥ B– INPUT
⑤ B+ INPUT

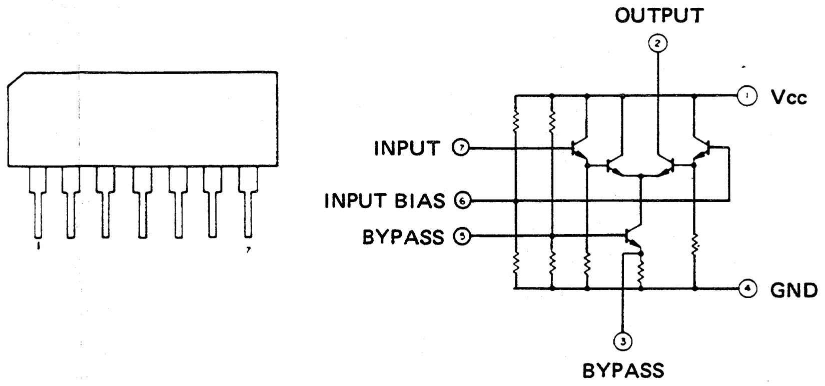
– UPC741C –

Operational Amplifier


OFFSET NULL ①
+ IN ②
– IN ③
V– ④
⑧ NC
⑦ V+
⑥ OUTPUT
⑤ OFFSET NULL

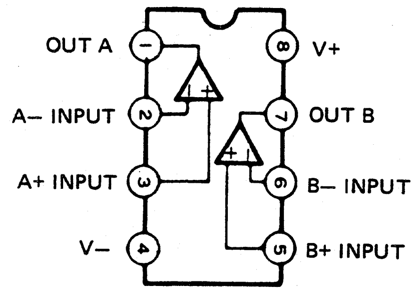
– UPC1163H –

FM-IF Differential Amplifier


1
7
OUTPUT
②
① Vcc
INPUT ⑦
INPUT BIAS ⑥
BYPASS ⑤
④ GND
③
BYPASS

– UPC1458C –

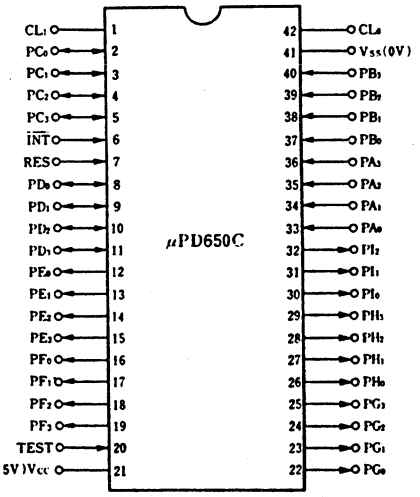
Dual Operation Amplifier


OUT A ①
A– INPUT ②
A+ INPUT ③
V– ④
⑧ V+
⑦ OUT B
⑥ B– INPUT
⑤ B+ INPUT

– UPD650C-219 –

MCU (Microcomputer Unit)

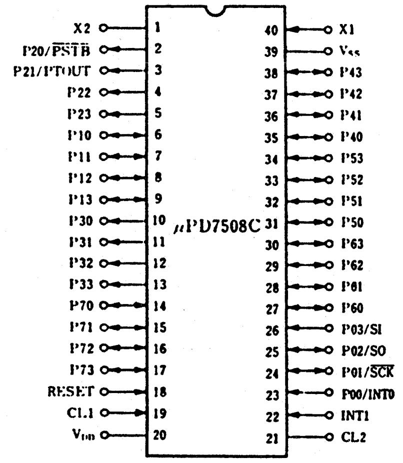
(TOP VIEW)


μPD650C
CL₁ 1
PC₀ 2
PC₁ 3
PC₂ 4
PC₃ 5
$\overline{INT}$ 6
RES 7
PD₀ 8
PD₁ 9
PD₂ 10
PD₃ 11
PE₀ 12
PE₁ 13
PE₂ 14
PE₃ 15
PF₀ 16
PF₁ 17
PF₂ 18
PF₃ 19
TEST 20
(+5V)Vcc 21
42 CL₀
41 Vss(0V)
40 PB₃
39 PB₂
38 PB₁
37 PB₀
36 PA₃
35 PA₂
34 PA₁
33 PA₀
32 PI₂
31 PI₁
30 PI₀
29 PH₃
28 PH₂
27 PH₁
26 PH₀
25 PG₃
24 PG₂
23 PG₁
22 PG₀

– UPD7508C-A28 –

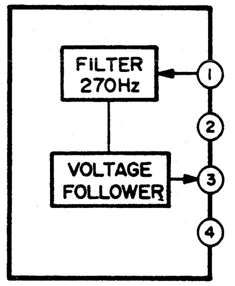
1 Chip. 4 Bit microcomputer

(TOP VIEW)


μPD7508C
X2 1
P20/$\overline{PSTB}$ 2
P21/PTOUT 3
P22 4
P23 5
P10 6
P11 7
P12 8
P13 9
P30 10
P31 11
P32 12
P33 13
P70 14
P71 15
P72 16
P73 17
RESET 18
CL1 19
V_DD 20
40 X1
39 Vss
38 P43
37 P42
36 P41
35 P40
34 P53
33 P52
32 P51
31 P50
30 P63
29 P62
28 P61
27 P60
26 P03/SI
25 P02/SO
24 P01/$\overline{SCK}$
23 P00/INT0
22 INT1
21 CL2

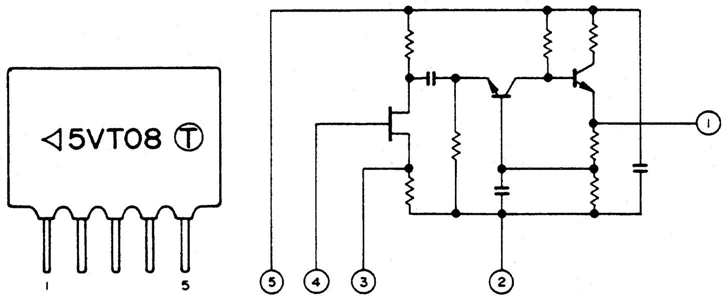
– 4VT01 –

Filter/Voltage Follower

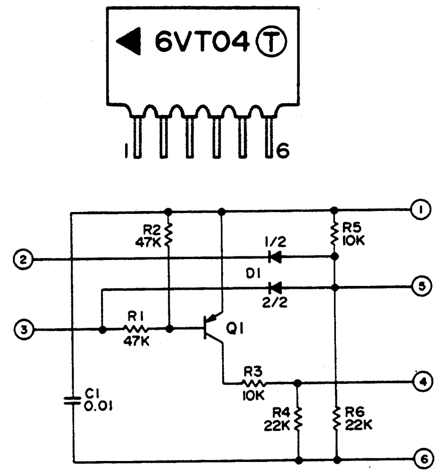

FILTER 270Hz
VOLTAGE FOLLOWER
①
②
③
④

– 5VT08 –

Playback FM Signal Preamplifier

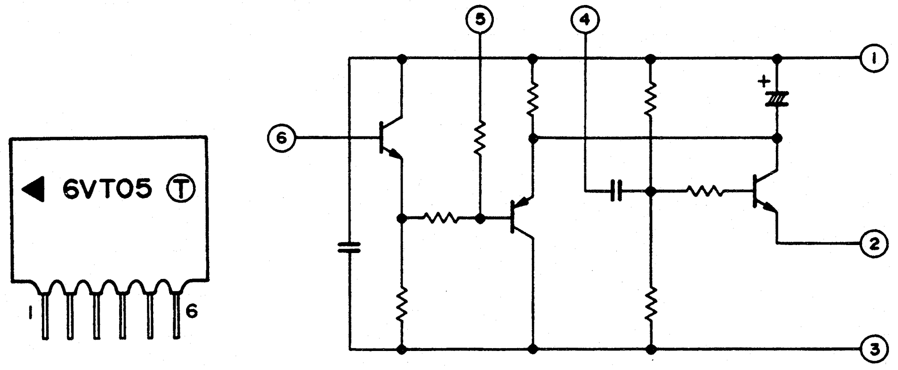

◁5VT08 Ⓣ
1
5
①
②
③
④
⑤

– 6VT04 –


◀ 6VT04 Ⓣ
1
6
①
②
③
④
⑤
⑥
R2 47K
R5 10K
1/2
D1
2/2
R1 47K
Q1
R3 10K
C1 0.01
R4 22K
R6 22K

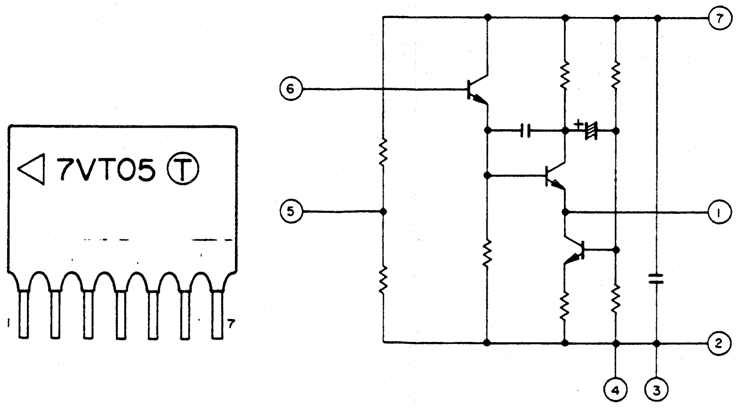
– 6VT05 –

Bias Auto Adjuster


◀ 6VT05 Ⓣ
1
6
①
②
③
④
⑤
⑥
+

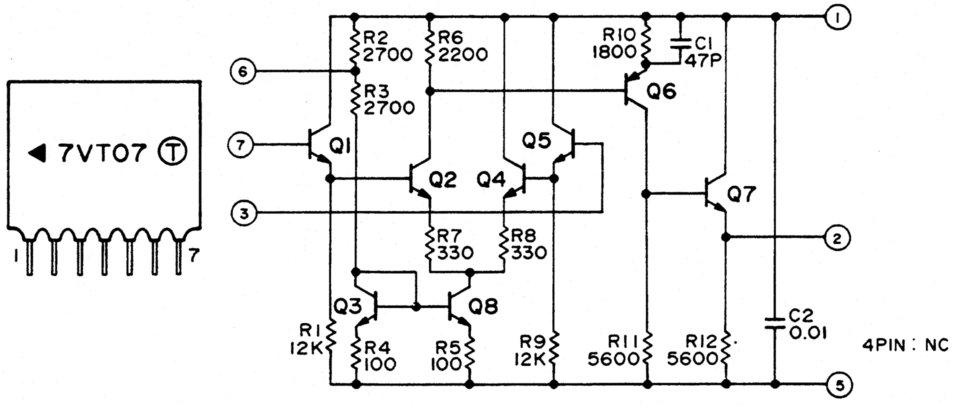
– 7VT05 –

Driver


◁ 7VT05 Ⓣ
1
7
①
②
③
④
⑤
⑥
⑦
+

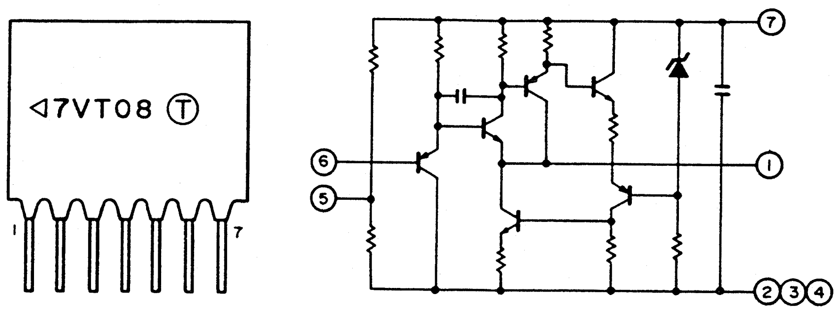
– 7VT07 –

Operational Amplifier


◀ 7VT07 Ⓣ
1
7
①
②
③
⑤
⑥
⑦
R2 2700
R6 2200
R3 2700
R10 1800
C1 47P
Q1
Q2
Q4
Q5
Q6
Q7
R7 330
R8 330
Q3
Q8
R1 12K
R4 100
R5 100
R9 12K
R11 5600
R12 5600
C2 0.01
4PIN : NC

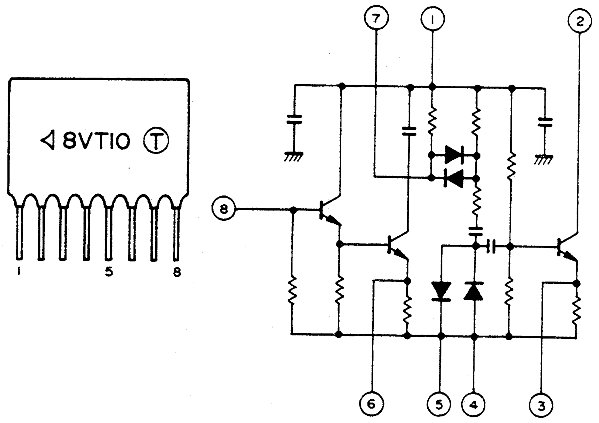
– 7VT08 –

Driver Amplifier

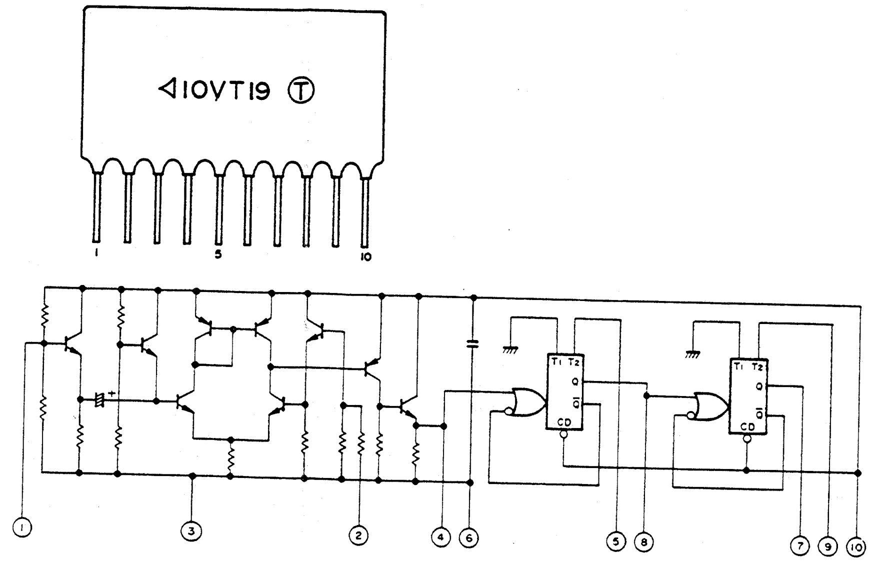

◁7VT08 Ⓣ
1
7
⑦
⑥
⑤
①
②③④

– 8VT10 –

Burst Gate

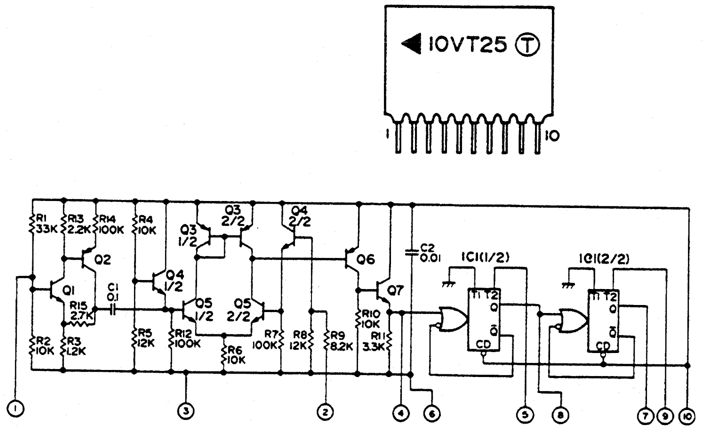

◁8VT10 Ⓣ
1
5
8
⑦
①
②
⑧
⑥
⑤
④
③

– 10VT19 –


◁10VT19 Ⓣ
1
5
10
T1 T2
Q
Q̄
CD
①
③
②
④⑥
⑤⑧
⑦⑨⑩

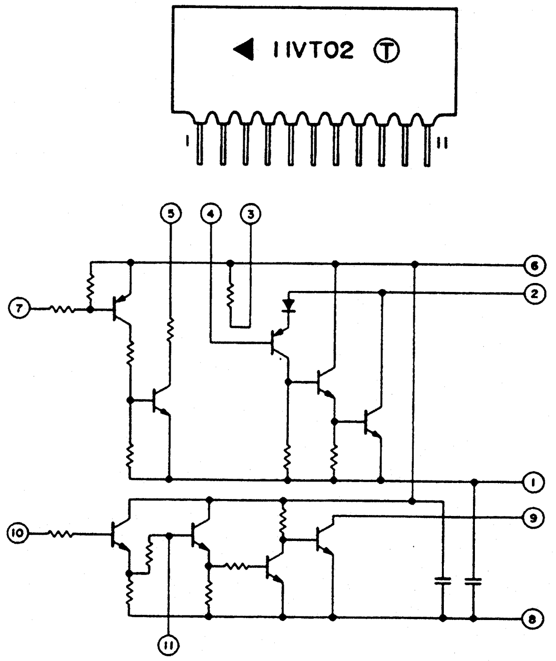
– 10 VT25 –

Sync Separator with Amplifier


◀10VT25 Ⓣ
1
10
R1 33K
R3 2.2K
R14 100K
R4 10K
Q3 1/2
Q3 2/2
Q4 2/2
Q2
Q1
R15 27K
C1 0.1
Q4 1/2
Q5 1/2
Q5 2/2
Q6
Q7
C2 0.01
IC1(1/2)
IC1(2/2)
R2 10K
R3 1.2K
R5 12K
R12 100K
R6 10K
R7 100K
R8 12K
R9 8.2K
R10 10K
R11 3.3K
CD
①
③
②
④⑥
⑤⑧
⑦⑨⑩

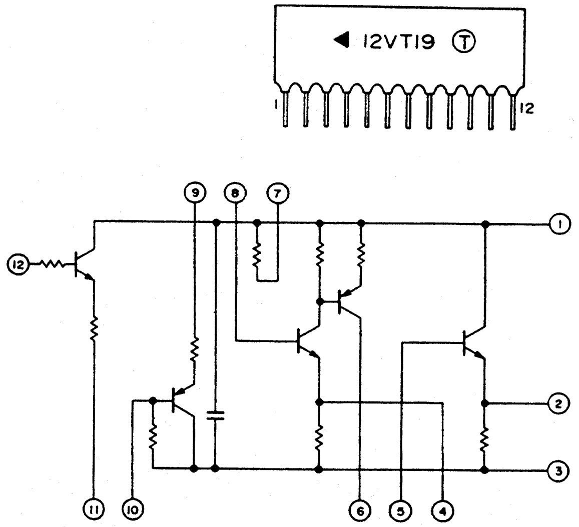
– 11VT02 –

V Pulse Add/Clamp Pulse Detector

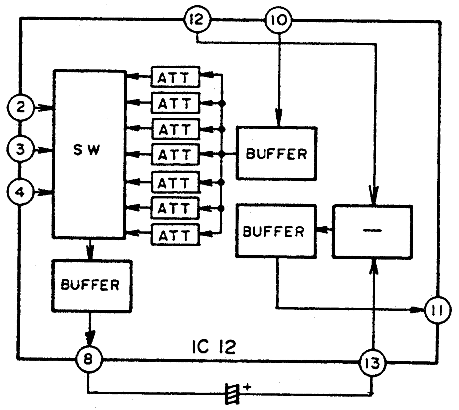

◀11VT02 Ⓣ
1
11
⑤
④
③
⑦
⑥
②
①
⑩
⑨
⑧
⑪

– 12VT19 –

Video Equalizer

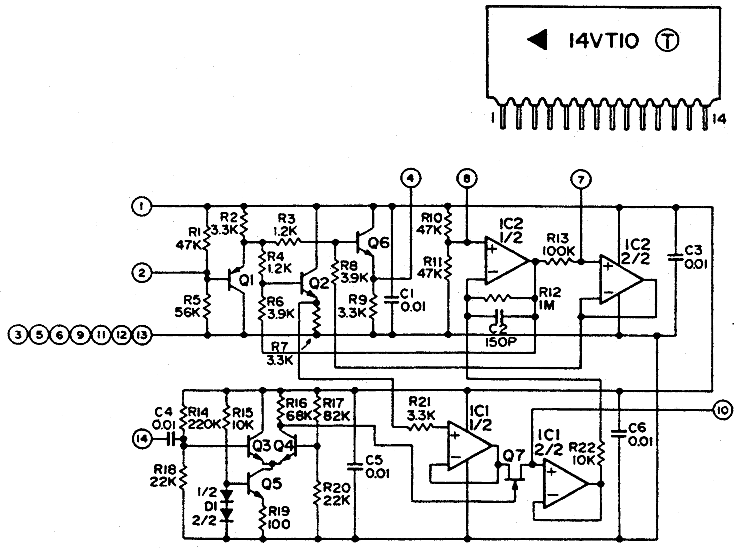

◀12VT19 Ⓣ
1
12
⑨
⑧
⑦
①
⑫
②
③
⑪
⑩
⑥
⑤
④

– 13VT05 –


⑫
⑩
②
③
④
SW
ATT
BUFFER
BUFFER
—
BUFFER
⑪
⑧
IC 12
⑬

– 14VT10 –

Pedestal Clamp


◀14VT10 Ⓣ
1
14
④
⑧
⑦
①
②
③⑤⑥⑨⑪⑫⑬
R1 47K
R2 3.3K
R3 1.2K
Q6
R10 47K
IC2 1/2
R13 100K
IC2 2/2
C3 0.01
R4 1.2K
Q1
Q2
R8 3.9K
R11 47K
R5 56K
R6 3.9K
R9 3.3K
C1 0.01
R12 1M
C2 150P
R7 3.3K
C4 0.01
R14 220K
R15 10K
R16 68K
R17 82K
R21 3.3K
IC1 1/2
C6 0.01
⑩
⑭
Q3 Q4
Q7
IC1 2/2
R22 10K
R18 22K
C5 0.01
1/2 D1 2/2
Q5
R20 22K
R19 100

SECTION 5
EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety.
Replace only with specified part numbers.

Page

5.1 STANDARD PART NUMBER CODING

5.1.1 Screw coding . . . . 5 - 2
5.1.2 Fuse coding . . . . 5 - 3

5.2 EXPLODED VIEWS AND PARTS LIST

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5.2.2 Cabinet assembly . . . . 5 - 4
5.2.3 Front panel assembly . . . . 5 - 5
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5.2.13 Mounting bracket assembly 5-26
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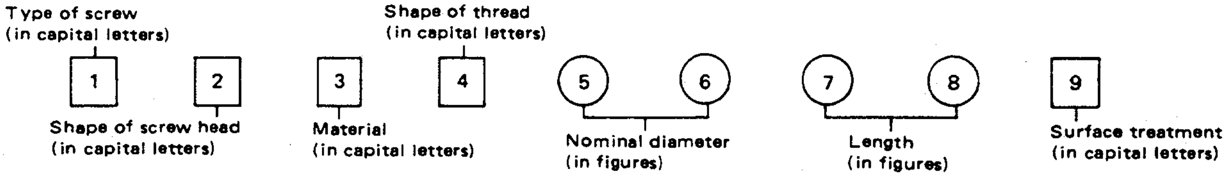
5.2.17 Video out terminal assembly 5-30

5.1 STANDARD PART NUMBER CODING

5.1.1 Screw coding

Standard screw part numbers are as follows.


Type of screw
(in capital letters)
Shape of thread
(in capital letters)
1
2
3
4
5
6
7
8
9
Shape of screw head
(in capital letters)
Material
(in capital letters)
Nominal diameter
(in figures)
Length
(in figures)
Surface treatment
(in capital letters)

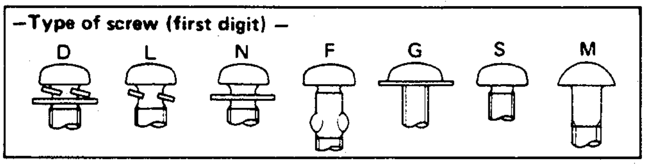
Type of screw (first digit)

S	Normal screws
D	Assembled machine screws (with plain and spring washers)
L	'' (with spring washer)
N	'' (with plain washer)
F	Feather screws
G	Washer head tapping screws
M	Wood screws

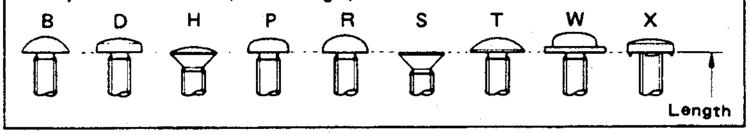
Shape of screw head (second digit)

B	Brazier head
D	Binding head
H	Oval countersunk head
P	Pan head
R	Round head
S	Flat head
T	Truss head
W	Washer head (machine screws)
X	Toothed head

–Type of screw (first digit) –



– Shape of screw head (second digit) –


B
D
H
P
R
S
T
W
X
Length

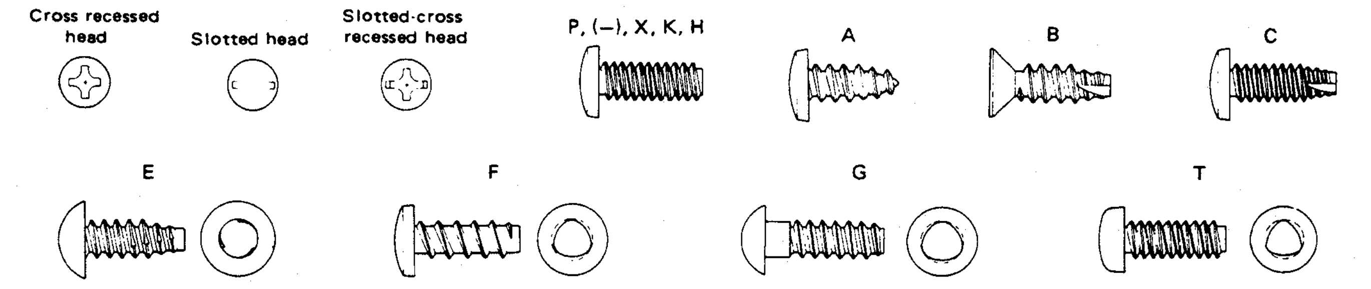
Material (third digit)

S	Steel
E	Stainless steel
C	Cast iron
U	Copper
B	Brass
P	Phosphor bronze
N	Nickel silver
Y	Cast brass
A	Aluminum
Z	Zinc alloy
K	Polycarbonate

Shape of thread (fourth digit)

P	Cross recessed head screws	
(–)	Slotted head machine screws	
X	Slotted-cross recessed head machine screws	
K	Cross recessed head machine screws for precision equipment	(type 1)
H	''	(type 3)
A	Cross recessed head tapping screws	(type 1)
B	''	(type 2)
C	''	(type 3)
E	Cross recessed head special tapping screws	(brand : evertight)
F	''	(brand : P-tight)
T	''	(brand : taptight)
G	''	[illegible]

– Shape of thread (fourth digit) –


Cross recessed head
Slotted head
Slotted-cross recessed head
P, (–), X, K, H
A
B
C
E
F
G
T

Nominal diameter (fifth and sixth digits)

The fifth and sixth digits are numbers indicating a nominal diameter or dimension. If the dimension exceeds 10 mm, three digits are used. The number indicates a nominal diameter or dimension, given in millimeters, multiplied by ten.

Length (seventh and eighth digits)

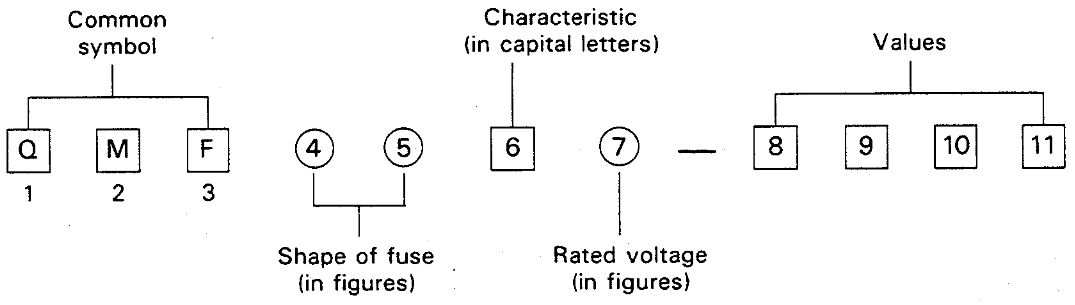
The seventh and eighth digits are numbers indicating length in milimeters. The preceding figure is zero when the dimension is smaller than 10 mm. For machine screws used in precision equipment whose length is given in units of 0.1 mm, the number indicates ten times the size of their length.

Surface treatment (ninth digit)

Z	Dichromate treatment after galvanizing (MFZn II-C)
N	Nickel plating (MFNi II, MFNi I)
R	Chromium plating (MBCr II, MBCr I)
G	Silver plating (SP4)
B	Black coating after plating
F	Blackening of iron (FB)
M	Blackening after galvanizing
K	Pickling of brass (PF2)
P	Phosphate treatment
W	Uni-chrome plating
L	Coating with transparent paint
A	Coloring red after galvanizing (MFZn II-C)
C	Coloring blue after galvanizing (MFZn II-C)
T	Coloring green after galvanizing (MFZn II-C)
V	Coloring purple after galvanizing (MFZn II-C)

5.1.2 Fuse coding

Standard fuse part numbers are as follows.


Common symbol
Characteristic (in capital letters)
Values
Q
M
F
1
2
3
④
⑤
6
⑦
—
8
9
10
11
Shape of fuse (in figures)
Rated voltage (in figures)

Shape of fuse
(fourth and fifth digits)

51	ϕ5.2 × 20 mm
60	ϕ6.4 × 30 mm
61	ϕ6.35 × 31.8 mm
63	ϕ6.4 × 30 mm with lead wires
66	ϕ6.35 × 31.8 mm with lead wires
00	Special type

Rated voltage
(seventh digit)

1	AC125 V
2	AC250 V
3	0.1−1 A : AC250 V 1.25−6.3 A : AC125 V

Values
(eighth-tenth or eleventh digits)
example:

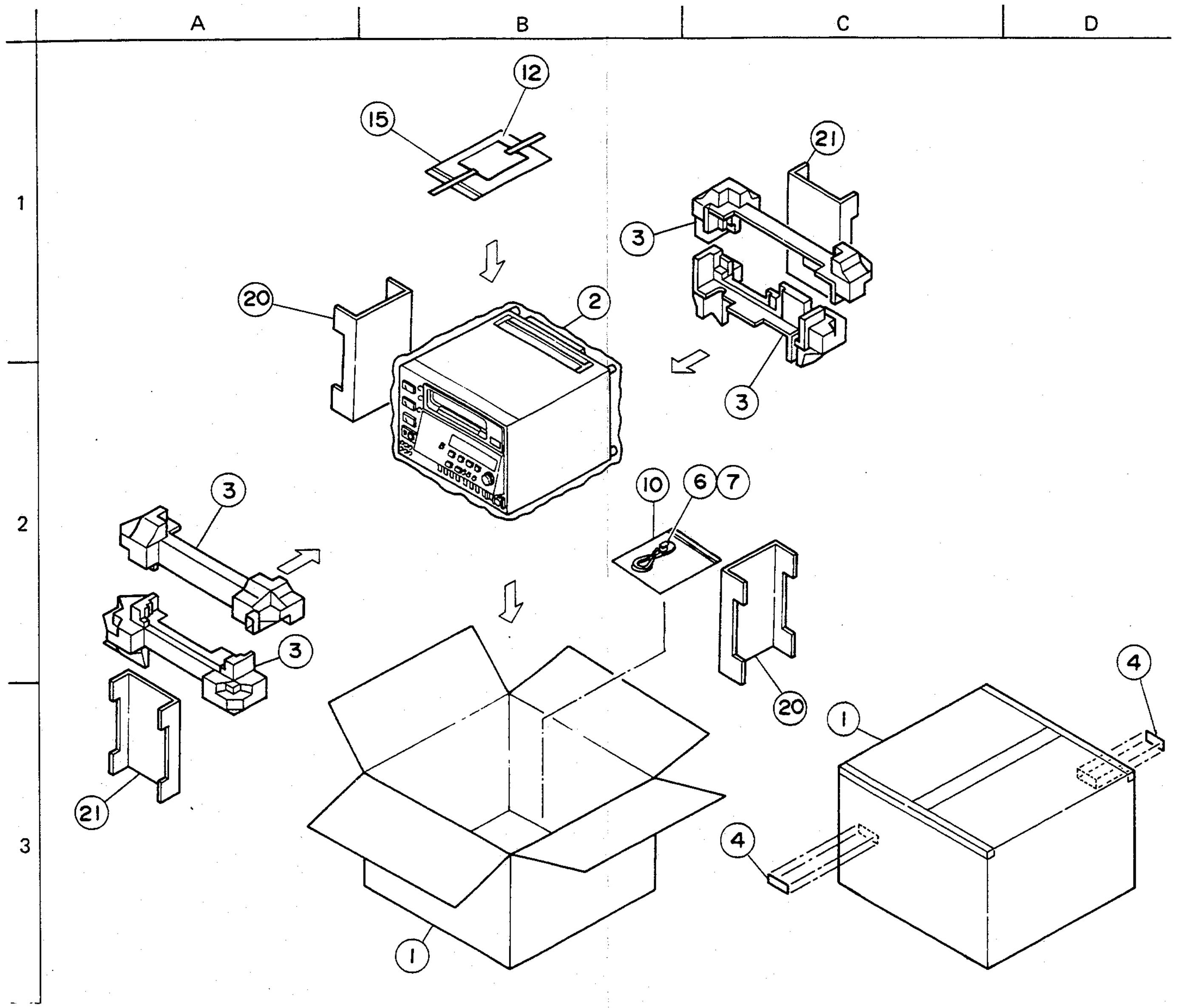
R63	0.63 A
1R0	1.0 A
2R5	2.5 A
100	10 A
R315	0.315 A
1R25	1.25 A

Characteristics (sixth digit)

Symbol	Fusing Current	Fusing Time	Remarks
A	210 %	Within 2 min.	Anti-rush type (for Europe)
	275 %	0.6 − 10 sec.	
	400 %	0.15 − 3 sec.	
	1000 %	0.02 − 0.3 sec.	
B	210 %	Within 30 min.	Regular fusible type (for SEMKO, Europe)
	275 %	0.05 − 2 sec.	
	400 %	0.01 − 0.3 sec.	
C	135 %	Within 1 hr.	Regular fusible type (for UL, Japan)
	200 %	Within 2 min.	
E	210 %	Within 2 min.	Anti-rush type (for Europe)
	275 %	0.6 − 10 sec.	
	400 %	0.15 − 3 sec.	
	1000 %	0.02 − 0.3 sec.	
J	135 %	Within 1 hr.	Anti-rush type
	200 %	Within 2 min.	
M	135 %	Within 1 hr.	Regular fusible type (for UL)
	200 %	Within 2 min.	
R	160 %	Within 1 hr.	Regular fusible type
	200 %	Within 2 min.	
S	160 %	Within 1 hr.	Anti-rush type
	200 %	Within 2 min.	
	700 % − 2000 %	Within 0.01 sec.	
U	135 %	Within 1 hr.	Anti-rush type (for UL)
	200 %	Within 2 min.	
	800 % − 2000 %	Within 0.01 sec.	

5.2 EXPLODED VIEWS AND PARTS LIST

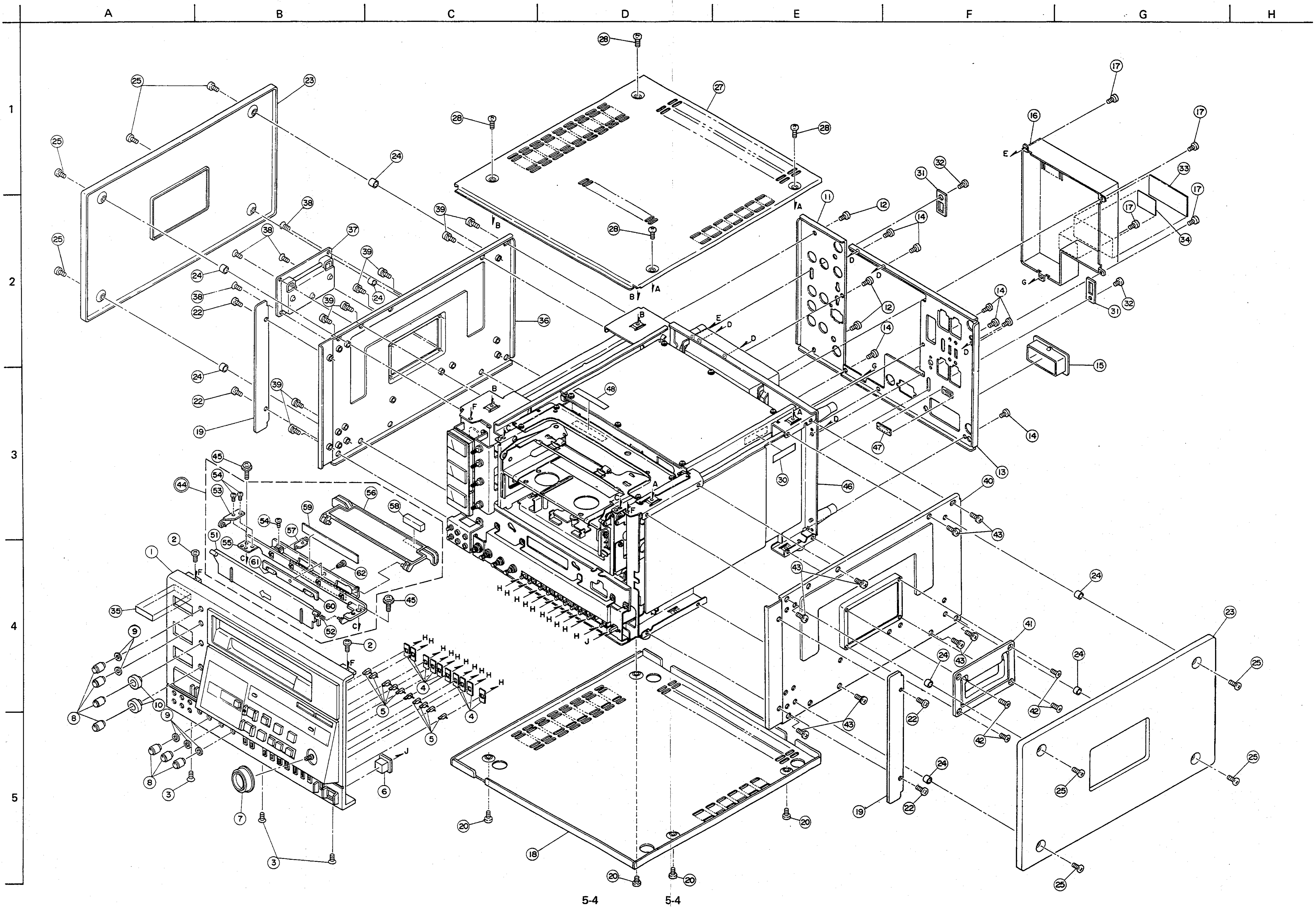
5.2.1 Packing assembly



– Packing assembly list –

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
1	PGD20128-06	Packing Case		3-B, 3-C	1
2	PGD30005-04	Poly Bag	for Set	1-B	1
3	PGD10084A	Cushion Assembly		1-B, 2-A, 2-C	1
4	PUP40619	Serial No. Sticker	for Packing Case	2-D, 3-C	2
5	–	–		–	–
6	GU35252A	Monitor Cable		2-C	1
7	A49005	Beads Band		2-C	1
8	–	–		–	–
9	–	–		–	–
10	QPGB024-03404	Poly Bag	for 6 and 7	2-B	1
11	–	–		–	–
⚠ 12	PGD30002-92	Instruction Book		1-B	1
13	–	–		–	–
14	–	–		–	–
15	QPGB024-03404	Poly Bag	for 12	1-B	1
16	–	–		–	–
17	–	–		–	–
18	–	–		–	–
19	–	–		–	–
20	PGD30362	Spacer		1-A, 3-C	2
21	PGD30362-02	"		1-C, 3-A	2

5.2.2 Cabinet assembly



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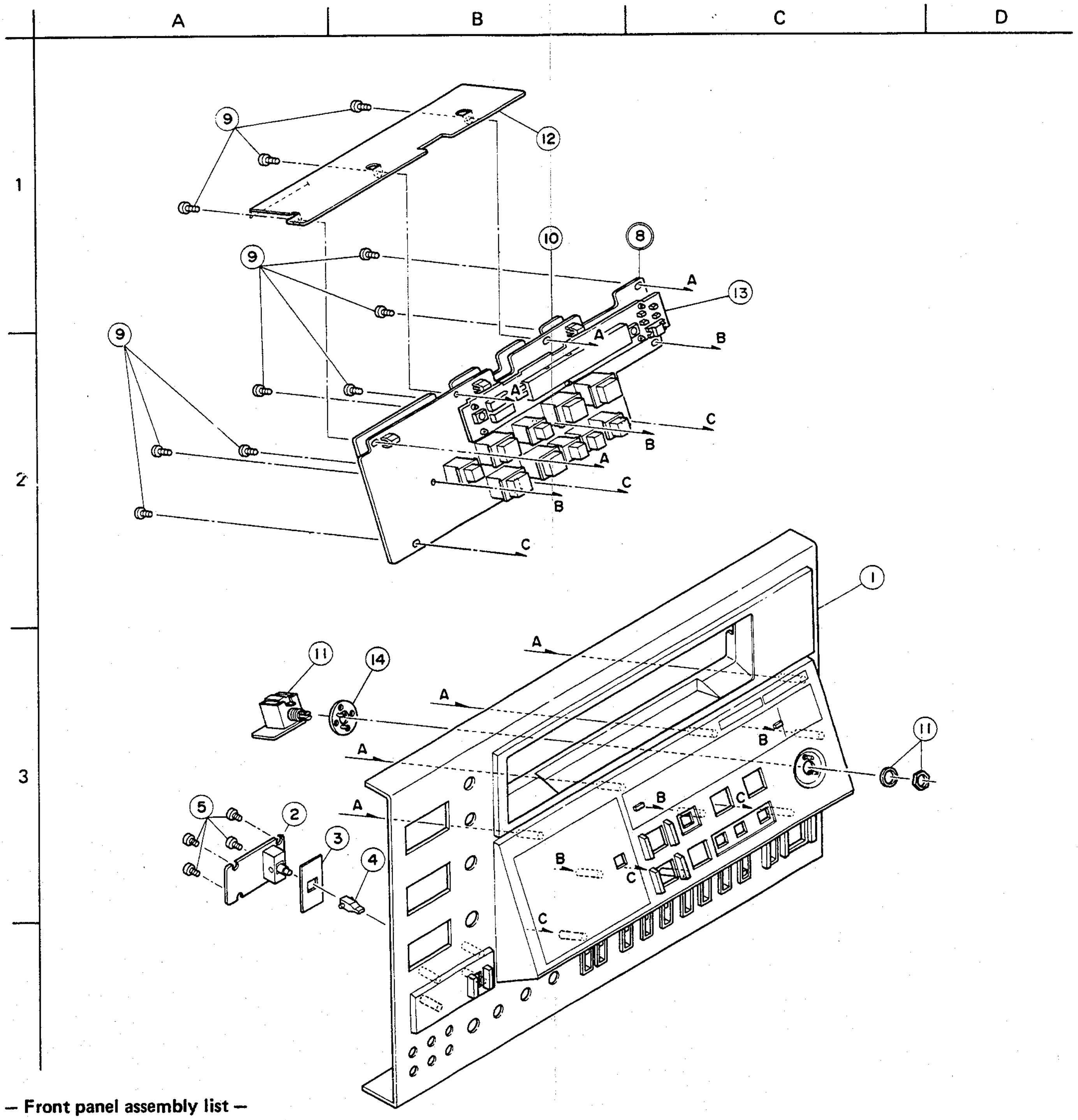
– Cabinet assembly list –

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
1	–	Front Panel Assembly	See Sec. 5.2.3.	4-A	1
2	SDSP3006RY	Screw	for 1 (Top side)	3-A, 4-C	2
3	SSSP3006RY	″	for 1 (Bottom side)	5-A, B	3
4	PGD40244-1-3	Plate		4-C	10
5	PGD40247	Knob	REMOTE, MEMORY, SYNC, FRAME SERVO, AUDIO MONITOR, LIMITER, VIDEO MODE, VIDEO AGC, VIDEO NR	4-C, 5-C	10
6	PGD40248	Push Knob	POWER	5-C	1
7	PGD40035B	Search Knob Assembly		5-B	1
8	PGD40249A	VR Knob (A) Assembly	TRACKING, VIDEO LEVEL, REC AUDIO-1/2 LEVEL, PHONES LEVEL, SKEW, Y-FREQ, RESPONSE	5-A	7
9	PGD40292	Felt Washer		4-A, 5-A	5
10	PGD40252A	VR Knob (B) Assembly	REC AUDIO - 1/2 LEVEL	4-A	2
⚠ 11	PGD20134-03	Rear Cover (B)		1-E	1
12	SDSP3006MY	Screw	for 11	2-F	3
⚠ 13	PGD10093-03	Rear Cover		3-F	1
14	SDSP3006MY	Screw	for 13	2-F, 3-F	7
15	PGD30254	Escutcheon	REMOTE-2	3-G	1
⚠ 16	PGD10089A	Regulator Cover Assembly		1-F	1
17	SDSP3006MY	Screw	for 16	1-G	4
⚠ 18	PGD10048-02	Bottom Cover		5-C	1
19	PGD30246-02	Side Plate		3-B, 5-E	2
20	SDSP4006MY	Screw	for 18	5-C, -D, -E	4
21	–	–		–	–
22	SDSP4006MY	Screw	for 19	2-B, 3-B, 5-F	4
⚠ 23	PGD10049-01-02	Side Cover		1-B, 4-G	2
24	PGD40255	Spacer		1-C, 2-B, -C, 4-F, -G, 5-F	8
25	SDSP4012MY	Screw	for 23	1-A, 2-A, 4-G, 5-G, -H	8
26	–	–		–	–
⚠ 27	PGD10050-02	Top Cover		1-E	1
28	SDSX4006R	Screw	for 27	1-C, -D, -E, 2-D	4
29	–	–		–	–
⚠ 30	PU51306	Sticker	Fuse Caution	3-E	1
31	PGD40283	Switch Protector		1-F	2
⚠ 32	SDSP2605MY	Screw	for 31	1-F	2
⚠ 33	PGD30018-19	Serial No. Plate		1-G	1
⚠ 34	PGD40318	Caution Label		2-G	1
35	PQ40111-1-5	Serial No. Plate		4-A	1
36	PGD10040-1-3	Handle Plate (L)		2-D	1
37	PGZ00217	Handle		2-B	1
38	SSSP4008RY	Screw	for 37	2-B	4
39	LPSP4006ZY	″	for 36	2-B, 3-B, 2-C	8
40	PGD10041-1-3	Handle Plate (R)		3-F	1
41	PGZ00217	Handle		4-F	1
42	SSSP4008RY	Screw	for 41	4-F, 5-F	4
43	LPSP4006ZY	″	for 40	3-F, 4-E, -F, 5-E	8
44	PRD30010A-5	Lid Assembly	Incl. 51 to 62	3-A	1
45	DPSP3006ZY	Screw	for 44	3-B, 4-C	2
46	–	Mechanism Assembly	See Sec. 5.2.4.	3-E	1
47	PU52764-03	Lens	for Hour Meter	3-E	1
48	PGD40352	Caution Label		3-D	1
49	–	–		–	–
50	–	–		–	–
51	PRD20011-1-4	Lid		3-B	1
52	PRD40157	Spring		4-B	1
53	PRD40158A	Lid Bracket Assembly		3-B	1
54	DPSP3006ZY	Screw	for 53 x 2, 57 x 1	3-B	3
55	PRD30011A-1	Stay Assembly		4-B	1
56	PRD30012A-1	Mirror Assembly		3-C	1
57	PRD40160	Mirror Bracket		3-B	1
58	PRD40305	Cushion		3-C	1
59	PRD40336	Shade		3-B	1
60	PGZ00234B	Lamp Assembly	Incl. 61	4-B	1
61	PGZ00234-002	Lamp		4-B	2
62	PU53276	Plastic Rivet		4-B	1

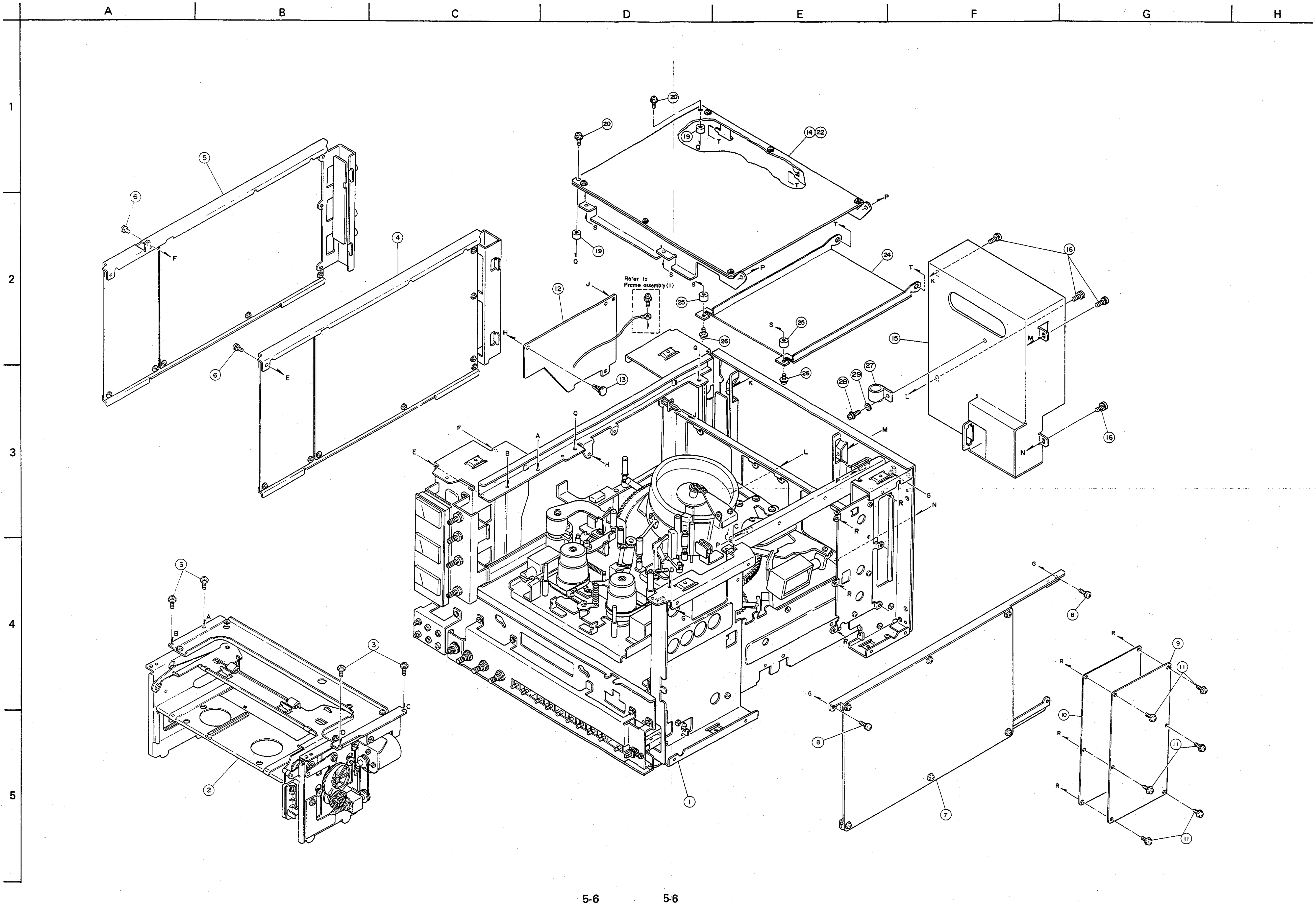
5.2.3 Front panal assembly



– Front panel assembly list –

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
⚠ 1	PGD10043F	Front Panel Assembly		2-C	1
2	–	Video Input Switch Board	See Sec. 6.2.40.	3-A	1
3	PGD40244-1-3	Plate		3-B	1
4	PGD40247	Knob	VIDEO INPUT	3-B	1
5	SBSF2608ZY	Tapping Screw	for 2	3-A	4
6	–	–		–	–
7	–	–		–	–
8	–	Operation-1 Board Assembly	Incl. 13 See Sec. 6.2.34..	1-C	1
9	SBSF2608ZY	Tapping Screw		1-A	10
10	–	Operation-2 Board Assembly	See Sec. 6.2.35.	1-B	1
11	–	Search VR Board Assembly	See Sec. 6.2.36.	3-A, -C	1
12	PGD30272-1-1	Protector		1-B	1
13	–	LED Display Assembly	See Sec. 6.2.33.	1-C	1
14	PGD40289A	Plate Assembly		3-B	1

5.2.4 Mechanism assembly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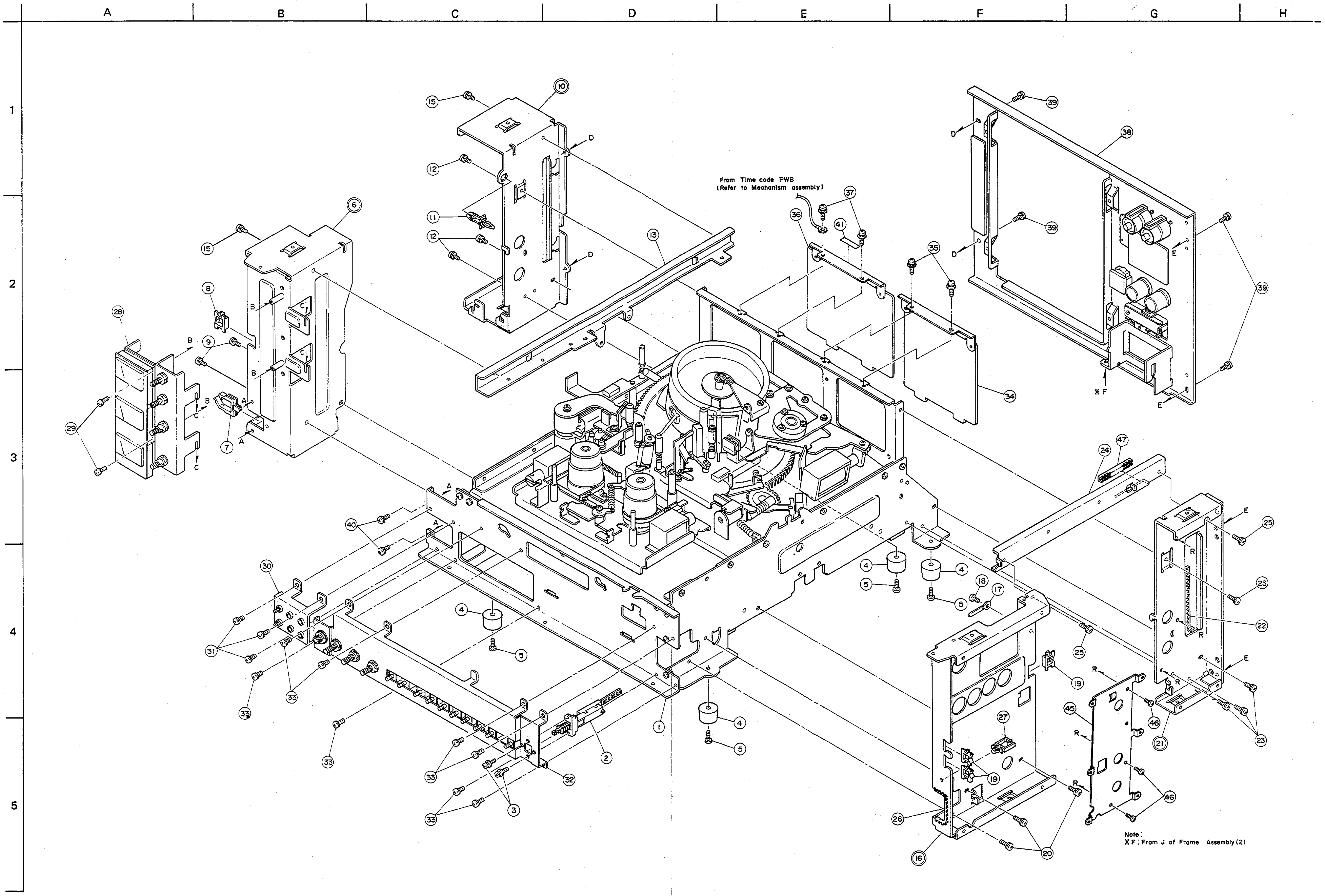
– Mechanism assembly list –

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
1	–	Frame Assembly	See Sec. 5.2.5, 5.2.6.	5-D	1
2	–	Cassette Compartment Ass'y	See Sec. 5.2.12.	5-B	1
3	DPSP3008ZY	Screw	for 2	4-A,-B,-C	4
4	–	Video Rec/PB Assembly	See Sec. 5.2.16.	2-C	1
5	–	Y/C Out Assembly	See Sec. 5.2.17.	1-B	1
6	LPSP3008ZY	Screw	for 4 x 1, 5 x 1	2-A, 3-B	2
7	–	Audio Board Assembly	See Sec. 6.2.3.	5-F	1
8	LPSP3008ZY	Screw	for 7	4-G, 5-E	2
9	–	Fuse Board Assembly	See Sec. 6.2.6.	4-G	1
10	PGD30276	Insulator		4-G	1
11	GBST3008ZY	Tapping Screw	for 9	4-G, 5-G	6
12	–	Time Code Board Assembly	See Sec. 6.2.19.	2-D	1
13	PGZ00210	Nylon Clip		3-D	1
14	–	Drum/Capstan Servo Board Ass'y	See Sec. 6.2.4.	1-E	1
15	–	Switching Regulator Assembly	See Sec. 5.2.15.	2-F	1
16	LPSP4006ZY	Screw	for 15	2-G, 3-G	4
17	–	–		–	–
18	–	–		–	–
19	PGD40327	Spacer		1-D, 2-D	2
20	DPSP3014ZY	Screw	for 14	1-D	2
21	–	–		–	–
22	–	Auto H. Phase Board Assembly	See Sec. 6.2.13.	1-E	1
23	–	–		–	–
24	–	Color Frame Servo Board Ass'y	See Sec. 6.2.16.	2-E	1
25	PGD40327	Spacer		2-D, -E	2
26	DPSP3014ZY	Screw	for 24	2-E, 3-E	2
27	PGZ00363	Line Filter		3-E	1
28	DPSP3008Z	Screw	for 27	3-E	1
29	WNS4000N	Washer		3-E	1

5.2.5 Frame assembly (1)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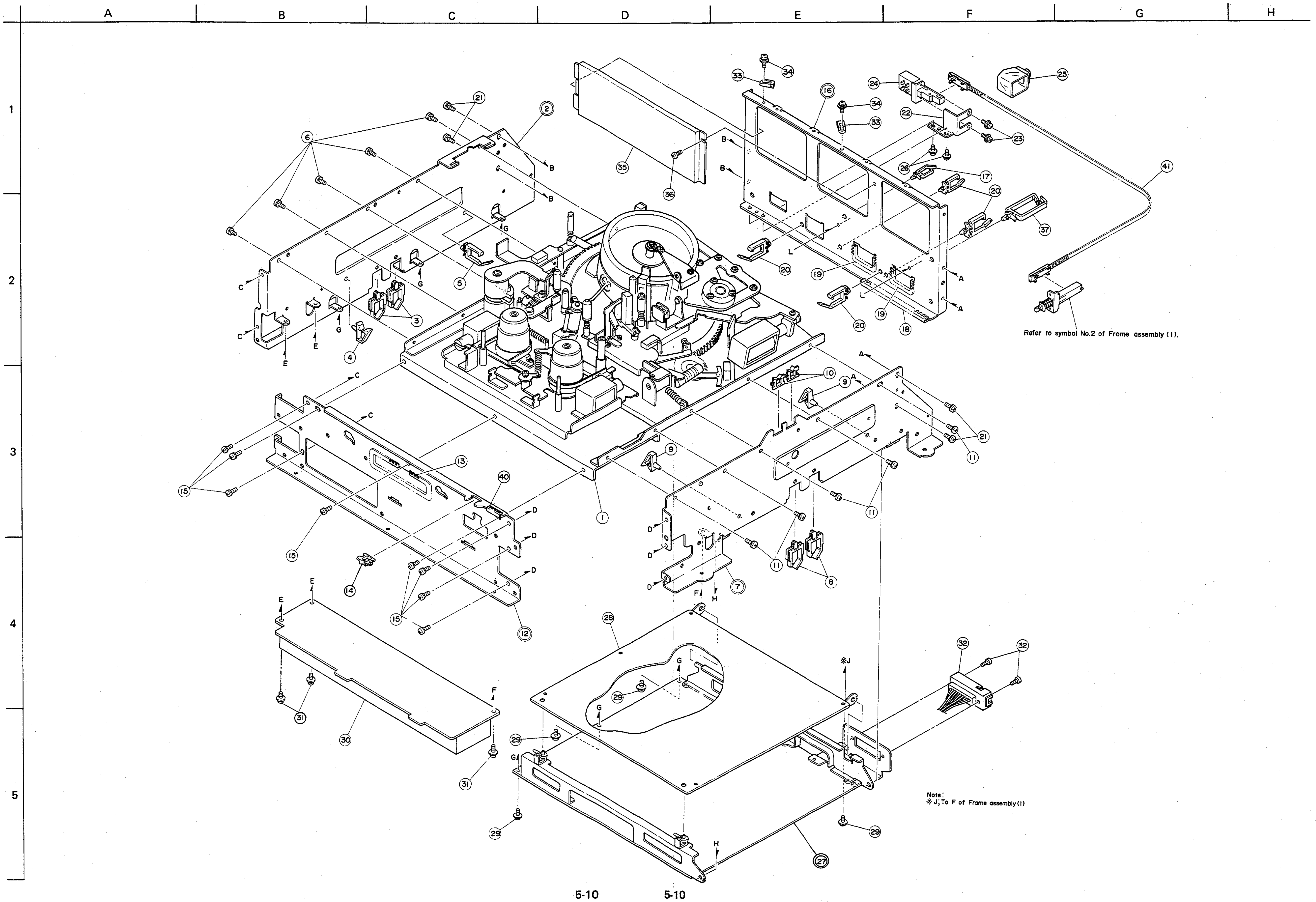
(Refer to Mechanism assembly)

Note:
※F: From J of Frame Assembly (2)

– Frame assembly (1) list –

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
1	–	Frame Assembly (2)	See Sec. 5.2.6.	5-D	1
⚠ 2	PGZ00571	Flex Switch Knob		5-D	1
3	DPSP3006ZY	Screw	for 2	5-C	2
4	QZF2115-002	Foot		4-C,-E,-F,5-E	4
5	SPSP3010ZY	Screw	for 4	4-C,-E,-F, 5-E	4
6	PGD30219A-05	Left Front Bracket Assembly	Incl. 7 and 8	2-B	1
7	PU49881	Edge Cover		3-B	1
8	PU48086	Edge Saddle		2-B	1
9	LPSP4006ZY	Screw	for 6	2-B	2
10	PGD20079A-03	Left Rear Bracket Assembly	Incl. 11	1-D	1
11	PGZ00213	PC Support 15		2-C	1
12	LPSP4006ZY	Screw	for 10	1-C, 2-C	3
13	PGD20067-1-3	Left Side Stay		2-D	1
14	–	–		–	–
15	LPSP4006ZY	Screw	for 13	1-C, 2-B	2
16	PGD20068B-06	Right Front Bracket Assembly	Incl. 17 to 19, 26 and 27	5-F	1
17	PU49485-3	Wire Clamp		4-F	1
18	SBST3008ZY	Tapping Screw		4-F	1
19	PU48086	Edge Saddle		4-G, 5-F	3
20	LPSP4006ZY	Screw		5-F	3
21	PGD30268B-04	Right Rear Bracket Assembly	Incl. 22, 45 and 46	5-G	1
22	PU43172-9-70	Nylon Grommet		4-H	1
23	LPSP4006ZY	Screw	for 21	4-H, 5-H	4
24	PGD30386A	Right Side Stay Assembly	Incl. 47	3-G	1
25	LPSP4006ZY	Screw	for 24	3-H, 4-G	2
26	PU43172-9-70	Nylon Grommet		5-F	1
27	PU54969	Wire Clamp		5-F	1
28	–	VR & Meter Bracket Ass'y	See Sec. 5.2.13.	2-A	1
29	SDSP3006ZY	Screw	for 28	3-A	2
30	–	Test Pin Bracket	See Sec. 5.2.13.	4-B	1
31	SBST3006ZY	Tapping Screw	for 30	4-B	3
32	–	Mounting Bracket Assembly	See Sec. 5.2.13.	5-D	1
33	SBST3006ZY	Tapping Screw	for 32	4-B, 5-B,-C	8
34	–	Audio Trans. Board Assembly	See Sec. 6.2.9.	3-F	1
35	LPSP3006ZY	Screw	for 34	2-F	2
36	–	2nd Regulator Board Assembly	See Sec. 6.2.17.	2-E	1
37	LPSP3006ZY	Screw	for 36	1-E	2
38	–	Connector Panel Assembly	See Sec. 5.2.14.	1-G	1
39	LPSP4006ZY	Screw	for 39	1-F, 2-F,-H	4
40	"	"	for 1	3-B	2
41	PGD40320	Label	Emergency	2-E	1
42	–	–		–	–
43	–	–		–	–
44	–	–		–	–
45	PGD30275-02-03	PWB Bracket		4-G	1
46	SBST3006ZY	Tapping Screw		5-G	3
47	PU43172-9-70	Nylon Grommet		3-G	1

5.2.6 Frame assembly (2)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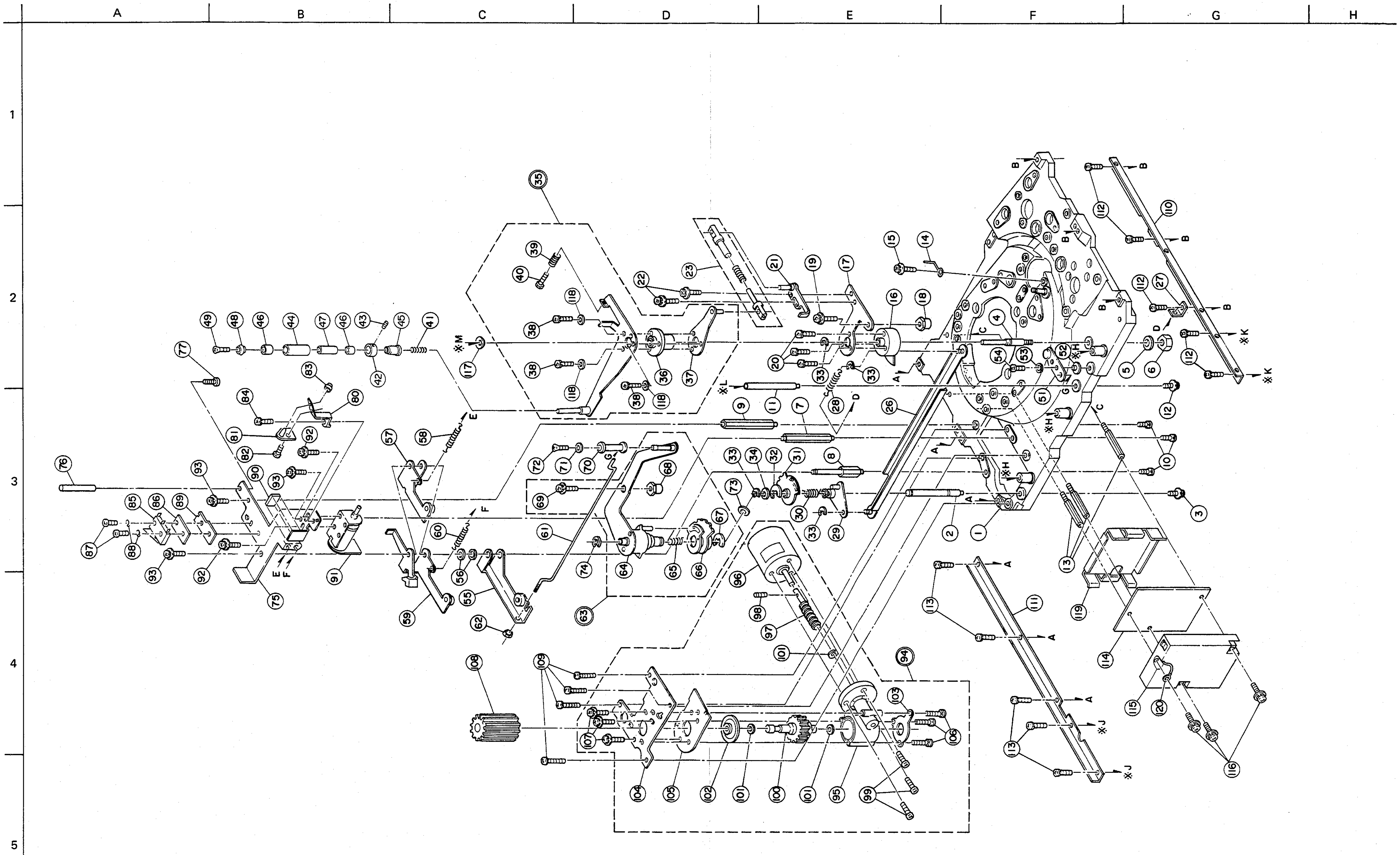
Refer to symbol No.2 of Frame assembly (1).

Note:
※J; To F of Frame assembly (1)

– Frame assembly (2) list –

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
1	–	Main Deck Assembly	See Sec. 5.2.7, 5.2.8, 5.2.9.	3-D	1
2	PGD20056A-3	Left Side Frame Assembly	Incl. 3 to 5	1-D	1
3	PU49881	Edge Cover		2-C	2
4	PU52939-2	Wire Clamp		2-B	1
5	PU54969	"		2-C	1
6	LPSP4006ZY	Screw	for 2	1-B	5
7	PGD20058B-08	Right Side Frame Assembly	Incl. 8 to 10	4-E	1
8	PU49881	Edge Cover		4-E	2
9	PU52939-2	Mini Clamp		3-E	2
10	PU48086	Edge Saddle		3-E	2
11	LPSP4006ZY	Screw	for 7	3-E,-F	5
12	PGD20060B-02	Front Frame Assembly	Incl. 13 , 14 and 40	4-C	1
13	PU43172-9-210	Nylon Grommet		3-C	1
14	PU48086	Edge Saddle		4-B	1
15	LPSP4006ZY	Screw	for 12	3-A, 4-B,C	8
16	PGD20062A-08	Rear Frame Assembly	Incl. 17 to 20 , 33 , 34 and 37	1-E	1
17	PU54969-2	Wire Clamp		1-F	1
18	PU43172-9-110	Nylon Grommet		2-F	1
19	" -9-70	"		2-E	2
20	PU54969	Wire Clamp		2-E,-F	4
21	LPSP4006ZY	Screw	for 16	1-C, 3-F	4
22	PGD40796	Switch Bracket		1-F	1
23	DPSP3006ZY	Screw	for 24	1-F	2
24	PGE00573	Flex Switch	(POWER SW)	1-E	1
25	PGD40797	Switch Cover		1-G	1
26	DPSP3006ZY	Screw	for 22	1-F	2
27	–	Syscon Board Assembly	Incl. 32 See Sec. 6.2.5.	5-E	1
28	–	Interface Board Assembly	See Sec. 6.2.18.	4-D	1
29	DPSP3008ZY	Screw	for 27	4-D, 5-C,-E	4
30	–	Reel MDA Board Assembly	See Sec. 6.2.15.	5-B	1
31	DPSP3008ZY	Screw	for 30	5-B, -C	3
32	PU44246-5	45-pin Connector	REMOTE-2	4-F	1
33	PU43981	Holder		1-E	2
34	SBST3006ZY	Tapping Screw	for 33	1-E	2
35	PGD40319	Shield Cover		1-D	1
36	SBST3006ZY	Tapping Screw	for 35	1-D	1
37	PU43147-4	Wire Clamp		2-F	1
38	–	–		–	–
39	–	–		–	–
40	PU43172-9-20	Nylon Grommet		3-C	1
41	PGZ00572	Flex Switch Wire		1-G	1

5.2.7 Main deck assembly (1)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Note :
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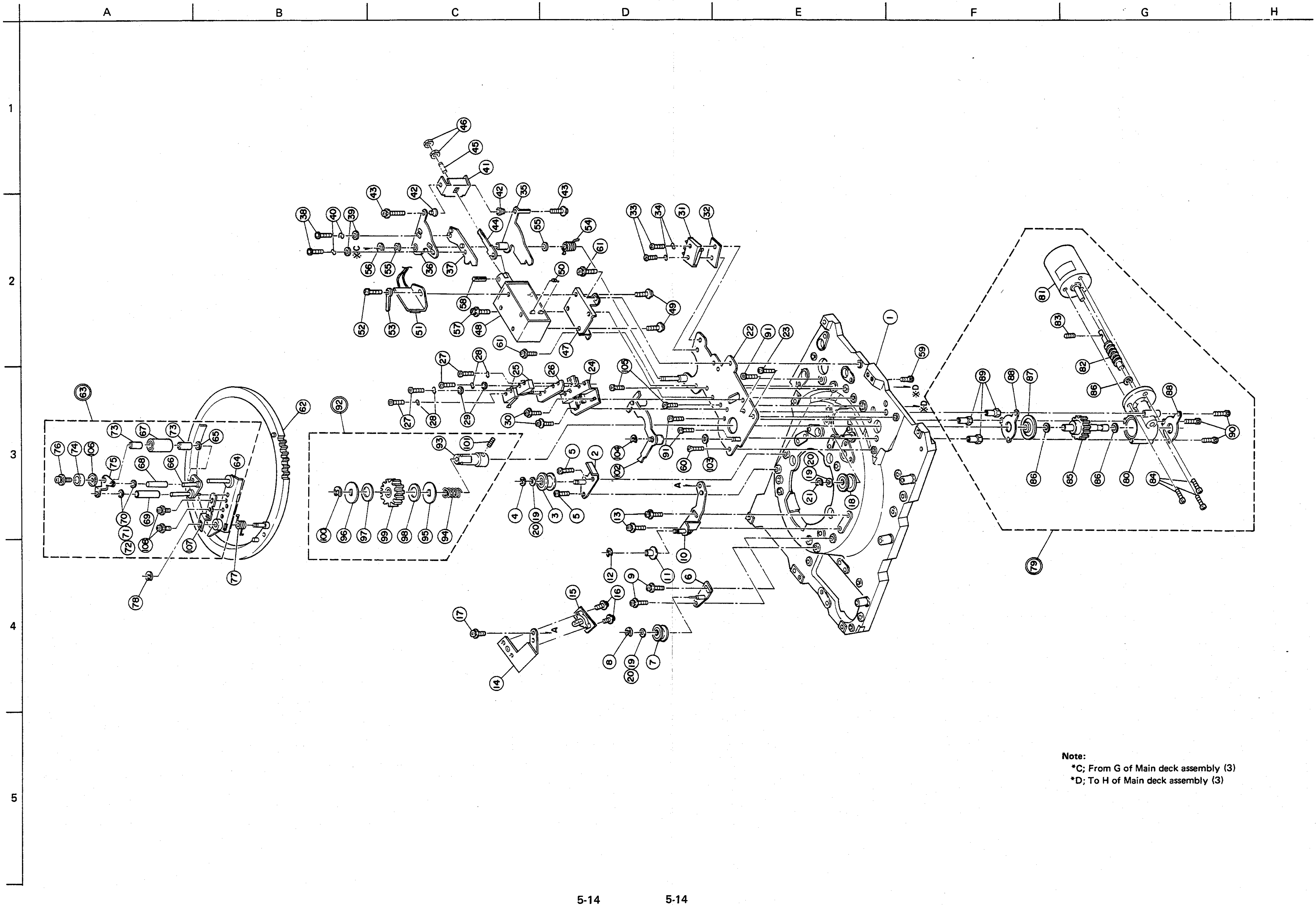
※J ; To B of Sub deck assembly
※K ; To C of Sub deck assembly
※L ; From L of Main deck assembly (3)
※M ; From M of Main deck assembly (3)

— Main deck assembly (1) list —

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
1	—	Main Deck Base		3-F	1
2	PRD40108	Stud		3-F	1
3	DPSP3008ZY	Screw	for 2	3-G	1
4	PRD40494	Stud		2-F	1
5	WNS4000N	Washer		2-G	1
6	NNS4000ZS	Nut		2-G	1
7	PU48306	Stud		3-E	1
8	PU48498	"		3-E	1
9	PRD40293	"		3-D	1
10	LPSP3010ZY	Screw	for 7 x 1, 8 x 1, 9 x 1	3-G	3
11	PRD40193	Stud		3-E	1
12	DPSP3010ZY	Screw	for 11	3-G	1
13	PU53863-3	Stud		3-F	3
14	PU50227	Spring		2-E	1
15	DPSP3008ZY	Screw	for 14	2-E	1
16	PU48377	SUP Tension Arm Drive		2-E	1
17	PU48378-2	Plate-2		2-E	1
18	PU48379	Stop Pin		2-E	1
19	DPSP3008ZY	Screw	for 18	2-E	1
20	LPSP3008ZY	"	for 17	2-E	3
21	PRD40253A-2	D.P. Holder Assembly		2-E	1
22	DPSP3006ZY	Screw		2-D	2
23	PRD30107A-02	Dumper Assembly		2-D	1
24	—	—		—	—
25	—	—		—	—
26	PU48386A	Connecting Plate Assembly		3-E	1
27	PU49376	Spring Hook		2-G	1
28	T30300-143	Spring		3-E	1
29	PU48389A	SUP Loading Arm Drive Assembly		3-E	1
30	PU48393	Coil Spring		3-E	1
31	PU32421	SUP Loading Arm Drive		3-E	1
32	REE8000	E-Washer		3-E	1
33	REE5000	"		2-E, 3-D,-E	4
34	Q03093-837	Washer		3-D	1
35	PRD40194C-03	SUP Tension Arm Assembly	Incl. 36 to 40 and 118	1-C	1
36	PU48394B	SUP Tension Arm Holder Assembly		2-D	1
37	PU48397A-1	Plate Assembly		2-D	1
38	SDSP3012ZY	Screw	for 36	2-C, 3-D	3
39	PUM30002-57	Spring		2-C	1
40	PU55310	S. Bolt		2-C	1
41	PU30080-7	Compression Spring		2-C	1
42	PRD40455	Flange		2-B	1
43	YFS2002B	Set Screw	Flange	2-B	1
44	PU53909-3	Roller		2-B	1
45	PRD40454	Spacer-(2)		2-C	1
46	PU44093	Bearing		2-B	2
47	PU53910-3	Spacer		2-B	1
48	PU53911-3	Cap		2-B	1
49	PRD40481	Long Lock Screw	for 48	2-A	1
50	—	—		—	—
51	PU48399A	End Lock Arm Assembly		3-F	1
52	PU48340	Bushing		2-F	1
53	Q03091-105	Washer		2-F	1
54	LPSP3012ZY	Screw	for 51	2-F	1
55	PRD40263A-1	Loading Arm Drive Assembly		4-C	1
56	Q03093-837	Washer		4-C	2
57	PU48406A	Drive Arm Assembly		3-B	1
58	PU35005-110	Spring		3-C	1
59	PU48408A	Lock Arm Assembly		4-C	1
60	PU35005-14	Spring		3-C	1
61	PRD30101-1-1	Pull Rod		3-C	1
62	PU49276	Nylon Nut		4-C	1
63	PUS46161B	TU Loading Arm Assembly	Incl. 64 to 69	4-D	1
64	PU32375B	TU Loading Arm Assembly		3-D	1
65	PU50296	Coil Spring		3-D	1
66	PU32377	TU Loading Arm Drive		3-D	1
67	REE8000	E-Washer		3-D	1
68	PU48414	Lock Pin		3-D	1
69	DPSP3008ZY	Screw	for 68	3-C	1
70	PU53913-1-1	Guide Roller		3-D	1
71	PU51099	Cap		3-C	1
72	SSSP2006ZY	Screw	for 70	3-C	1
73	Q03093-837	Washer		3-D	1
74	REE5000	E-Washer		3-D	1
75	PU55027A-2	Protector Assembly	Incl. 76 and 77	4-B	1
76	PRD40183-2	Return Pole		3-A	1
77	LPSP3008ZY	Screw		2-A	1
78	—	—		—	—
79	—	—		—	—
80	PU53914	Holder		3-B	1
81	—	Photo Transistor Board Assembly	(TAPE START) See Sec. 6.2.24.	3-B	1
82	SPSP2604ZY	Screw	for 81	3-B	1
83	PU49209	Shade		2-B	1
84	LPSP3004ZY	Screw	for 80	3-B	1
85	QSM1S01-030	Microswitch	S1024, DRAW END SW	3-A	1
86	PU44212	Spacer		3-A	1
87	SPSP2312ZY	Screw	for 85	3-A	2
88	WLS2300N	Washer		3-A	2
89	PRD40214	Nut Plate		3-A	1
90	PU48418-4	Felt Sheet		3-B	1
91	PU48591A	Differential Trans. Assembly	Incl. 4 5, See Sec. 6.2.29.	4-B	1
92	DPSP3006ZY	Screw	for 91	3-B, 4-A	2
93	DPSP3006ZY	"	for 75	3-A,-B, 4-A	3
94	PUS36060E	TU Loading Arm Motor Assembly	Incl. 95 to 107	4-E	1
95	PU32374-1-5	Housing		5-E	1
⚠ 96	PU48362-2	DC Motor	M1006, TU LOADING ARM MOTOR	4-D	1
97	PU48363-1-4	Worm Gear		4-E	1
98	YFS2603	Set Screw	Worm Gear	4-E	1
99	LPSP3006ZY	Screw	for 95	5-E	3
100	PU48364B	Worm Wheel Assembly		5-E	1
101	Q03093-818	Washer		4-E, 5-D,-E	3
102	PU48365-1-1	Cover		5-D	1
103	PU48366	Plate		4-E	1
104	PRD40191	Loading Drive Motor Mounting		5-D	1
105	PRD40192	Plate		5-D	1
106	LPSP3025ZY	Screw	for 103	4-F	3
107	DPSP3006ZY	"	for 104	4-D	3
108	PU52136A	Drive Gear Assembly		4-C	1
109	LPSP3010ZY	Screw	for 94	4-D	4
110	PGD20093	Side Angle (Right)		1-G	1
111	PU20908-1-3	" (Left)		4-F	1
112	LPSP4010ZY	Screw	for 112	1-F, 2-G	5
113	LPSP4010ZY	"	for 113	4-E,-F	5
114	—	Preamp Board Assembly	See Sec. 6.2.10.	4-F	1
115	PGD30256-1-4	Shield Cover		4-G	1
116	DPSP3008ZY	Screw	for 114	5-G	3
117	PRD40495	Cornd Disc Spring		2-C	1
118	Q03093-831	Washer		2-D, 3-D	3
119	PGD30308	Shield Cover		4-F	1
120	P220-05A4A 2NNWN	Wire Assembly		4-G	1

5.2.8 Main deck assembly (2)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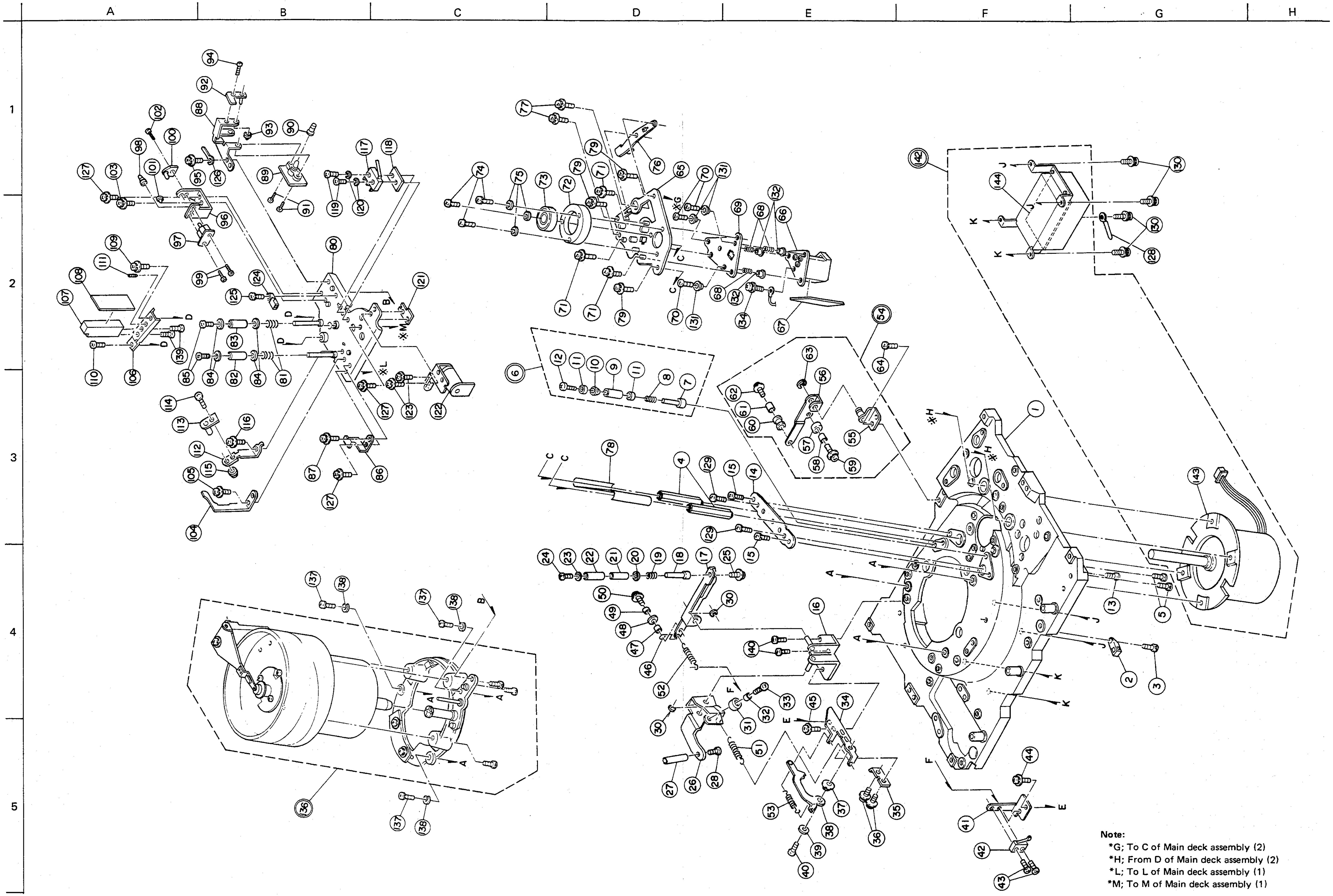
Note:
*C; From G of Main deck assembly (3)
*D; To H of Main deck assembly (3)

– Main deck assembly (2) list –

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
1	–	Main Deck Base		2-F	1
2	PU48312A	Guide Roller Holder Assembly		3-D	1
3	PU48314	Ring Guide Roller		3-D	1
4	REE2500	E-Washer		3-C	1
5	LPSP3010ZY	Screw	for 2	3-D	2
6	PU48315A	Guide Roller Holder Assembly		4-D	1
7	PU48314	Ring Guide Roller		4-D	1
8	REE2500	E-Washer		4-D	1
9	DPSP3010ZY	Screw	for 6	4-D	2
10	PU53889A	End Set Roller Bracket Assembly		4-D	1
11	PU48320	End Set Roller		4-D	1
12	REE3000	E-Washer		4-D	1
13	DPSP3010ZY	Screw	for 10	3-D	2
14	PU53892	LED Bracket		4-C	1
15	–	LED Board	(TAPE START) See Sec. 6.2.20.	4-D	1
16	SPSP2008ZY	Screw	for 15	4-D	2
17	DPSP3006ZY	"	for 14	4-C	1
18	PU48314	Ring Guide Roller		3-E	1
19	Q03093-825	Washer	(t = 0.25) – for Clearance Adjustment (C = 0.05–0.18)	3-C,-E, 4-D	–
20	" -831	"	(t = 0.13)	3-C,-E, 4-D	–
21	REE2500	E-Washer		3-E	1
22	PU32369B	Sub Mounting Plate Assembly		2-E	1
23	LPSP4012ZY	Screw	for 22	2-E	1
24	PU48321A-01	Reel Plate Assembly		2-D	1
25	QSM1S01-032	Microswitch	S1026, S1027, LOADING/UNLOADING END SW	3-C	2
26	PU48324	Spacer		3-D	1
27	SPSP2310NY	Screw	for 25	2-C, 3-C	4
28	WLS2300N	Lock Washer		2-C, 3-C	4
29	WSB2300N	"		3-C	2
30	DPSP3006ZY	Screw	for 24	3-C	2
31	QSM1S01-030	Microswitch	S1007, PINCH ROLLER SW	2-D	1
32	PU44212	Spacer		2-D	1
33	SPSP2310NY	Screw	for 31	2-D	2
34	WLS2300N	Lock Washer		2-D	2
35	PRD40274A	Pinch Roller Plate (1) Assembly		1-C	1
36	PRD40275A	Pinch Roller Plate (2) Assembly		2-C	1
37	PRD40278	Pinch Roller Plate (3)		2-C	1
38	BYS3006BY	S. Bolt		2-B	2
39	WNB3000N	Washer		2-B	2
40	WLS3000N	Lock Washer		2-B	2
41	PRD40281	Regulator		1-C	1
42	PRD40280	Collar		1-C	2
43	DPSP3008ZY	Screw	for 35 x 1, 36 x 1	1-C,-D	2
44	PU48327	Power Plate		2-C	1
45	PU30080-066	Compression Spring		1-C	1
46	NNS5000NS	Nut		1-C	2
47	PRD40180	Pinch Solenoid Holder		2-D	1
⚠ 48	PU48329	Solenoid Assembly	SOL1001 PINCH ROLLER	2-C	1
49	DPSP3006ZY	Screw	for 48	2-D	2
50	WO3C	Diode	D1001 for SOL1001	2-D	1
51	PU50570	Dew Sensor		2-C	1
52	LPSP3005ZY	Screw	for 51	2-B	1
53	–	–		–	–
54	PRD40294	Spring		2-D	1
55	Q03093-837	Washer		2-C	2
56	REE5000	E-Washer		2-B	1
57	DPSP3006ZY	Screw	for 47	2-C	1
58	PRE4012	Spring Pin		2-C	1
59	LPSP4010ZY	Screw	for 23	2-F	1
60	SSSP4010ZY	"	for 22	3-D	1
61	DPSP3010ZY	"	for 22 x 1, 47 x 1	2-C,-D	2
62	PU32372A	Loading Ring Assembly		3-B	1
63	PRD30108A-02	Pinch Roller Arm Assembly	Incl. 64 to 67 and 106 to 108	3-A	1
64	PU53895B	Pinch Roller Arm Sub Assembly		3-B	1
65	Q03091-126	Washer		3-B	1
66	PU53897C-2	Plate Assembly		3-A	1
67	PU50400A	Pinch Roller Assembly		3-A	1
68	PRD42006	Roller		3-A	1
69	PRD42006-02	"		3-A	1
70	Q03093-829	Washer	(t = 0.5)	3-A	–
71	" -830	"	(t = 0.25) – for Clearance Adjustment (C = 0.1–0.25)	3-A	–
72	" -838	"	(t = 0.13)	4-A	–
73	PRD40475	Spacer		3-A	2
74	PU50403-4	Guide In Roller		3-A	1
75	PGD40136-2	End Play Stopper		3-A	1
76	DPSP2606ZY	Screw	for 64	3-A	1
77	PU48361	Coil Spring		4-B	1
78	REE3000	E-Washer		4-A	1
79	PUS36063E	Loading Ring Motor Assembly	Incl. 80 to 90	4-F	1
80	PU32374-1-5	Housing		3-G	1
⚠ 81	PU48362-2	DC Motor	M1005, LOADING RING MOTOR	2-F	1
82	PU48363-1-4	Worm Gear		2-G	1
83	YFS2603	Set Screw	Worm Gear	2-F	1
84	LPSP3006ZY	Screw	for 80	3-G	3
85	PU48364B	Worm Wheel Assembly		3-G	1
86	Q03093-818	Washer		3-F,-G	3
87	PU48365-1-1	Cover		3-F	1
88	PU48366	Plate		3-F-G	2
89	PU48367	Spacer		3-F	3
90	LPSP3025ZY	Screw	for 88	3-G	3
91	LPSP3006ZY	"	for 79	2-E, 3-D	3
92	PUS46150C	Loading Drive Gear Assembly	Incl. 93 to 101	3-B	1
93	PU48368-2	Gear Holder		3-C	1
94	PGD30004-2	Compression Spring		3-C	1
95	PU48369	Clutch Disk		3-C	1
96	PU48369-2	"		3-B	1
97	PU48370	Felt Ring		3-B	1
98	" -2-2	"		3-C	1
99	PU48371	Ring Drive Gear		3-C	1
100	REE7000	E-Washer		3-B	1
101	YWS3003PS	Screw	for 93	3-C	1
102	PU48372A	Lock Arm Assembly		3-D	1
103	Q03093-836	Washer		3-D	1
104	REE5000	E-Washer		3-D	1
105	LPSP4020ZY	Screw	for 142 of Main Deck (3)	2-D	2
106	PRD40476	Spring		3-A	1
107	PRD40477	Setting Plate		4-A	1
108	DPSP3005ZY	Screw		4-A	2

5.2.9 Main deck assembly (3)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Note:
*G; To C of Main deck assembly (2)
*H; From D of Main deck assembly (2)
*L; To L of Main deck assembly (1)
*M; To M of Main deck assembly (1)

– Main deck assembly (3) list –

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
1	–	Main Deck Base		3-F	1
2	PU43981	Holder		4-G	1
3	LPSP3006ZY	Screw	for 2	4-G	1
4	PU48303	Connecting Rod		3-D	2
5	LPSP4012ZY	Screw	for 4	4-G	2
6	PGD40104C-04	Guide Pole Assembly	Incl. 7 to 12 and 141	3-C	1
7	PRD40298	Stud		3-D	1
8	PUM30002-40	Spring		3-D	1
9	PRD40470-02	Guide Pole		2-D	1
10	PRD40469	Guide Ring		2-D	1
11	PU53888	Guide Flange		2-D	2
12	SDSP3006TY	Screw	for 9	2-D	1
13	LPSP3006ZY	"	for 6	4-G	1
14	PU48309A	Motor Hang Plate Assembly		3-E	1
15	LPSP4010ZY	Screw	for 14	3-E, 4-E	2
16	PU48332A	Return Pole Arm Mount Assembly		4-E	1
17	PU48334	Return Pole Arm (1)		4-D	1
18	PU49673-2	Stud		4-D	1
19	PU30080-7	Spring		4-D	1
20	PRD40268	Stop Ring		4-D	1
21	PRD42029	Sleeve		4-D	1
22	PRD42028	Roller		4-D	1
23	PRD40107	Stop Ring		4-D	1
24	SPSP2010ZY	Screw	for 22	4-C	1
25	DPSP3008ZY	"	for 18	4-E	1
26	PRD40182-1-1	Return Pole Arm (2)		5-D	1
27	PRD40183-2	Return Pole		5-D	1
28	LPSP3008ZY	Screw	for 27	5-D	1
29	–	–		–	–
30	REE3000	E-Washer		4-E, 5-D	2
31	PU55626	Roller		5-E	1
32	PU40869	Collar		4-E	1
33	SDSP3012ZY	Screw	for 31	4-E	1
34	PRD40184	Bracket	Return Pole	4-E	1
35	PRD40185	Stopper		5-E	1
36	DPSP3006ZY	Screw	for 35	5-E	2
37	PU48340	Bushing		5-E	1
38	PRD40186	Lock Arm		5-E	1
39	Q03091-105	Washer		5-E	1
40	SDSP3010ZY	Screw	for 38	5-E	1
41	PU53894	Microswitch Holder		5-F	1
42	QSM1S01-032	Microswitch	S1023, LOADING END ZONE SW	5-F	1
43	SPSP2310NY	Screw	for 42	5-F	2
44	DPSP3008ZY	"	for 41	5-F	1
45	DPSP3006ZY	"	for 34	4-E	1
46	PU48342	Connecting Pin		4-D	1
47	T30302-008	Collar		4-D	1
48	Q03091-105	Washer		4-D	1
49	PU48337-2	Roller		4-D	1
50	DPSP3014ZY	Screw	for 49	4-D	1
51	PU35005-109	Spring		5-E	1
52	" -111	"		4-D	1
53	PRD30024	Tension Spring		5-E	1
54	PUS46147B	Lifter Assembly	Incl. 55 to 63	2-E	1
55	PU48343A	Bracket Assembly		3-E	1

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
56	PU48346	Lifter		3-E	1
57	PU55626	Roller		3-E	1
58	PU40869	Collar		3-E	1
59	DPSP3010ZY	Screw	for 57	3-E	1
60	PU40868	Guide Roller		3-E	1
61	PU40869	Collar		3-E	1
62	DPSP3010ZY	Screw	for 60	3-E	1
63	REE5000	E-Washer		2-E	1
64	LPSP4010ZY	Screw	for 54	2-E	1
65	PRD30014	Audio/Control Head Mount		1-D	1
66	PGZ00262B	Audio/Control Head Assembly		2-E	1
67	–	Audio/Control Head Board	See Sec. 6.2.42.	2-E	1
68	PU30080-20	Spring		2-D,-E	3
69	PRD40187-1-2	Head Sliding Plate		2-E	1
70	SPSP3012CY	Screw	for 66	1-D, 2-D	3
71	DPSP3006TY	"	for 69	1-D, 2-D	3
72	PU48423	Bearing Holder		1-D	1
73	PGD40325	Bearing		1-C	1
74	LPSP3012ZY	Screw	for 72	1-C	3
75	Q03091-105	Washer		1-C	3
76	PRD40269-1-2	Setting Plate		1-D	1
77	DPSP3006ZY	Screw	for 76	1-C	2
78	PU48522-2	Shield Plate		3-D	1
79	DPSP4008ZY	Screw	for 65	1-D, 2-D	3
80	PRD30015A-1	Supply Plate Assembly		2-B	1
81	PUM30002-40	Spring		3-B	2
82	PU54853-2	Guide Pole		3-B	1
83	" -2	"		2-B	1
84	PU53888	Guide Flange		3-B	4
85	SDSP3006TY	Screw	for 82 x 1, 83 x 1	3-A	2
86	PU48425	Shade		3-C	1
87	DPSP3006ZY	Screw	for 86	3-B	1
88	PRD40210	Bracket		1-A	1
89	–	LED Board	(TU TAPE SLACK) See Sec. 6.2.23.	1-B	1
90	PU52528	LED Cap		1-B	1
91	SPSP2008ZY	Screw	for 89	2-B	2
92	–	Photo Transistor Board	(TU TAPE SLACK) See Sec. 6.2.27.	1-B	1
93	PU49209	Shade		1-B	1
94	SPSP2604ZY	Screw	for 92	1-B	1
95	DPSP3006ZY	"	for 88	1-A	1
96	PRD40251	Bracket		2-B	1
97	–	LED Board	(SUP TAPE SLACK) See Sec. 6.2.22.	2-A	1
98	PU52528	LED Cap		1-A	1
99	SPSP2008ZY	Screw		2-B	2
100	–	Photo Transistor Board Assembly	(SUP TAPE SLACK) See Sec. 6.2.26.	1-A	1
101	PU49209	Shade		1-A	1
102	SPSP2604ZY	Screw	for 100	1-A	1
103	DPSP3006ZY	"	for 96	1-A	1
104	PRD40265-1-2	Protector Release		3-A	1
105	DPSP3006ZY	Screw	for 104	3-A	1
106	PRD40208-1-2	Erase Head Base		3-A	1
107	PGZ00257A	Full Erase Head Assembly		2-A	1
108	–	Full Erase Head Board	See Sec. 6.2.52.	2-A	1
109	SPSP3010ZY	Screw	for 106	2-A	1
110	LPSP3006ZY	"	for 106	3-A	1

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
111	YCS3006B	Set Screw	Erase Head Base	2-A	1
112	PU48417-2	Photo Transistor Holder		3-A	1
113	–	Photo Transistor Board Assembly	(TAPE END) See Sec. 6.2.25.	3-A	1
114	SPSP2604ZY	Screw	for 113	3-A	1
115	PU49209	Shade		3-B	1
116	DPSP3006ZY	Screw	for 112	3-B	1
117	QSM1S01-030	Microswitch	S1025, STORE END SW	1-B	1
118	PU44212	Spacer		1-C	1
119	SPSP2312ZY	Screw	for 117	2-B	2
120	WLS2300N	Lock Washer		2-B	2
121	PRD40214	Nut Plate		2-C	1
122	PU48592A	Differential Trans. Assembly	Incl. \boxed{4} \boxed{4}, See Sec. 6.2.28.	3-C	1
123	DPSP3006ZY	Screw	for 122	3-C	2
124	PU43981	Holder		2-B	1
125	LPSP3006ZY	Screw	for 124	2-B	1
126	PU49485-3	Wire Clamp		1-B	1
127	DPSP3008ZY	Screw	for 80	1-A, 3-B,-C	3
128	PU49485	Wire Clamp		2-G	1
129	LPSP4020ZY	Screw	for 143	3-D	2
130	LPSP3006ZY	"	for 144	1-G, 2-G	4
131	PRD40450	Collar (1)		1-D, 2-D	3
132	PRD40451	" (2)		2-E	3
133	–	–		–	–
134	DPSP3006ZY	Screw	for 66	2-E	1
135	–	–		–	–
136	–	Drum Assembly	See Sec. 5.2.11.	5-B	1
137	LPSP4014ZY	Screw	for 136	4-B,-C, 5-C	3
138	WNB4000N	Washer		4-B,-C, 5-C	3
139	SDSP2003NY	Screw	for 107	2-A	2
140	DPSP3012ZY	"	for 16	4-E	2
141	–	–		–	–
⚠ 142	PGZ00235C	DC Motor Assembly	Incl. 143, 144. M1001, CAPSTAN MOTOR	1-F	1
⚠ 143	PGZ00235-003	Capstan Motor Assembly		3-G	1
⚠ 144	PGZ00235-002	Capstan MDA		1-F	1

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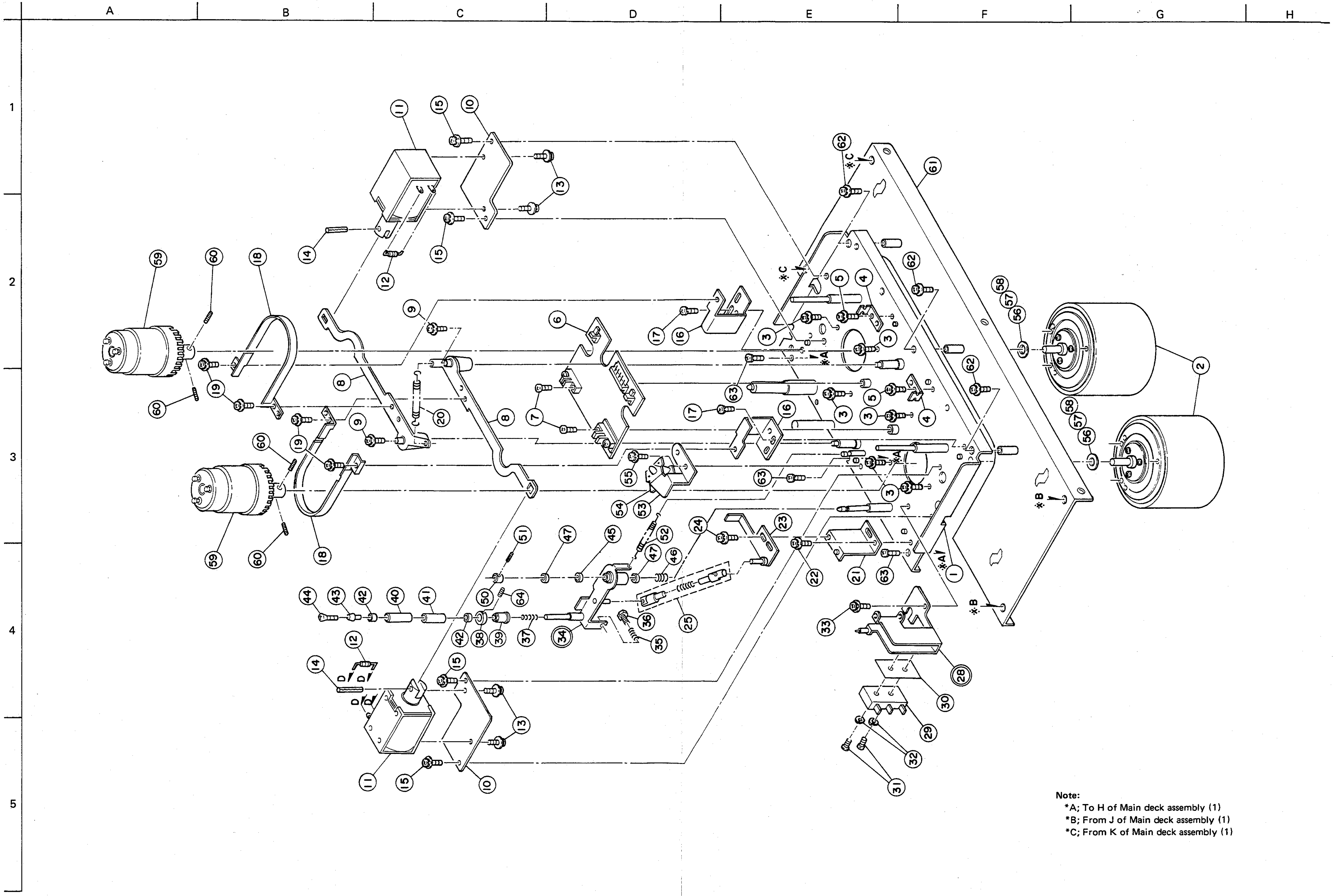
5.2.10 Sub deck assembly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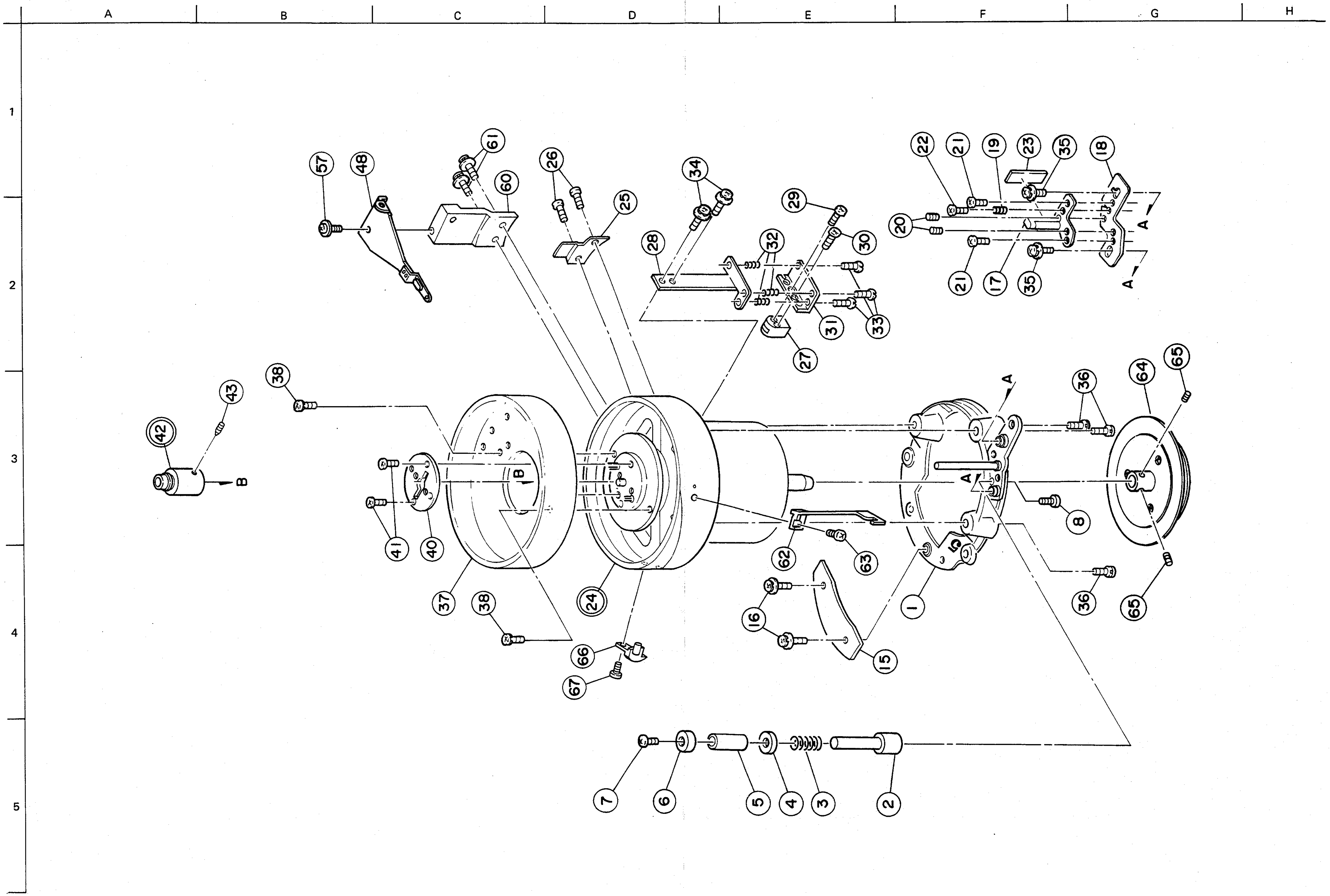
Note:
*A; To H of Main deck assembly (1)
*B; From J of Main deck assembly (1)
*C; From K of Main deck assembly (1)

– Sub deck assembly list –

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
1	PRD20013A-2	Sub Deck Assembly		4-F	1
⚠ 2	PGZ00209A	DC Motor	M1003, M1004, SUP/TU REEL MOTOR	2-G	2
3	DPSP4010ZY	Screw	for 2	2-E, 3-E	6
4	PRD40237	Board Holder		2-E, 3-F	2
5	DPSP3006ZY	Screw	for 4	2-E, 3-E	2
6	–	Reel FG Board Assembly	See Sec. 6.2.43.	2-D	1
7	SDSP3008ZY	Screw	for 6	3-C	2
8	PU48439A	Brake Arm Assembly		3-B,-C	2
9	DPSP3006ZY	Screw	for 8	2-C, 3-B	2
10	PRD40239	Brake Solenoid Holder		1-C, 5-C	2
⚠ 11	PGZ00313	Brake Solenoid	SOL1002, SOL1003, SUP/TU REEL BRAKE	1-C, 5-C	2
12	WO3C	Diode	D1002 for SOL1002, D1003 for SOL1003	2-C, 4-B	2
13	DPSP3006ZY	Screw	for 11	1-D, 5-C	4
14	PRE3010	Spring Pin		2-B, 4-B	2
15	DPSP3006ZY	Screw	for 10	1-C, 2-C, 4-C, 5-C	4
16	PRD40240	Brake Holder		2-D, 3-E	2
17	LPSP3006ZY	Screw	for 16	2-D, 3-D	2
18	PRD40299A	Brake Band Assembly		2-B, 4-B	2
19	DPSP3006ZY	Screw	for 18	3-B	4
20	PGD30003-4	Spring		3-C	1
21	PRD40241	Setting Plate Holder		4-E	1
22	DPSP3006ZY	Screw	for 21	4-E	1
23	PU48380B	D.P. Holder Assembly		3-E	1
24	DPSP3006ZY	Screw	for 23	3-D	1
25	PRD30107A-02	Dumper Assembly		4-D	1
26	–	–		–	–
27	–	–		–	–
28	PRD40242A	Detector Assembly	Incl. 29 to 32	4-F	1
29	QSM1S01-032	Microswitch	S1028, REC SAFETY SW	5-F	1
30	PU44212	Spacer		4-F	1
31	SPSP2010ZY	Screw		5-F	2
32	WLS2000N	Washer		5-F	2
33	DPSP3006ZY	Screw	for 28	4-E	1
34	PRD40105B-01	TU Tension Arm Assembly	Incl. 35 and 36	4-D	1
35	PUM30002-57	Spring		4-D	1
36	PU55310	S. Bolt		4-D	1
37	PRD30023-7	Spring		4-C	1
38	PRD40455	Guide Flange		4-C	1
39	PRD40454	Spacer-(2)		4-C	1
40	PU53909-3	Guide Roller		4-C	1
41	PU53910-3	Spacer		4-C	1
42	PU44093	Ball Bearing		4-B,-C	2
43	PU53911-3	Cap		4-B	1
44	PRD40481	Long Lock Screw	for 43	4-B	1
45	PRD40106-2	Spacer		3-D	1
46	PU30080-7	Spring		4-D	1
47	PU48497	Bearing		3-D	2
48	–	–		–	–
49	–	–		–	–
50	PU53918	Stop Ring		4-C	1
51	YFS3003	Set Screw	Stop Ring	3-C	1
52	T30300-7	Spring		3-D	1
53	PU53919B	Bracket Assembly	Incl. 54	3-D	1
54	–	LED Board	(TAPE END) See Sec. 6.2.21.	3-D	1
55	DPSP3006ZY	Screw	for 53	3-D	1
56	Q03093-837	Washer	(t = 0.5) for Height Adjustment	2-F, 3-G	–
57	" -836	"	(t = 0.25) SUP Reel Disk (H = 5.0–5.2)	2-F, 3-G	–
58	" -844	"	(t = 0.13) TU Reel Disk (H = 3.8–4.0)	2-F, 3-G	–
59	PRD40245A	Reel Disk Assembly	Incl. 60	2-A, 4-B	2
60	YWS3003P	Set Screw	TU/SUP Reel Disk	2-B, 3-A,-B, 4-B	4
61	PRD20015A-2	Sub Deck-2 Assembly		1-F	1
62	DPSP4010ZY	Screw	for 61	1-E, 2-F	3
63	LPSP4010ZY	"	for 1	3-E, 4-E	3
64	YFS2002B	Set Screw	Guide Flange	4-C	1

5.2.11 Drum assembly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– Drum assembly list –

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
1	PRD20018A-5	Drum Base Assembly		4-F	1
2	PRD40298-2	Stud		5-E	1
3	PUM30002-40	Spring		5-E	1
4	PUM30018-8	Spacer		5-E	1
5	PU54853	Guide Pole		5-E	1
6	PGD40029	Guide Flange		5-D	1
7	SDSP3006TY	Screw	for 6	5-D	1
8	LPSP3008ZY	"	for 1	3-G	1
9	–	–		–	–
10	–	–		–	–
11	–	–		–	–
12	–	–		–	–
13	–	–		–	–
14	–	–		–	–
15	–	Drum Terminal Board	See Sec. 6.2.11.	4-E	1
16	LPSP3006ZY	Screw	for 15	4-E	2
17	PGZ00196A	Address Head Assembly		2-F	1
18	PRD40226-1-2	Address Head Base (2)		1-G	1
19	PRD30023-3	Compression Spring		1-F	1
20	YCS3006B	Set Screw	Address Head Base (2)	2-F	2
21	SPSP3008ZY	Screw	for 17	1-F, 2-F	2
22	SPSP3014ZY	"	for 17	1-F	1
23	–	Address Head Board	See Sec. 6.2.44.	1-F	1
⚠ 24	PGS20055A	Lower Drum Assembly	Incl. 27 to 34	4-D	1
25	PRD40267-1-1	Shield Plate		2-D	1
26	SDBP3006NY	Screw	for 25	1-D	2
27	PU47199	Pick-up Head		2-E	1
28	PGD40314	Pick-up Head Holder		2-D	1
29	SPSP2003ZY	Screw	for 27	2-E	1
30	SDSP2003NY	"	for 27	2-E	1
31	PGD40315	Pick-up Head Base		2-E	1
32	PU30080-49	Spring		2-E	3
33	SDBP3010TY	Screw	for 31	2-E	3
34	DPSP3008ZY	"	for 28	1-D	2
35	DPSP3006ZY	"	for 18	1-F, 2-F	1
36	LPSP4010ZY	Screw	for 24	3-G, 4-G	3
37	PRD30035B	Upper Drum Assembly		4-C	1
38	DPSP4012CY	Screw	for 37	3-B, 4-C	2
39	–	–		–	–
40	–	Video Head Terminal Board	See Sec. 6.2.12.	4-C	1
41	SPSP2006ZY	Screw	for 40	4-C	2
42	PRD40513A	Slip Ring Assembly	Incl. 43	3-A	1
43	YFS3003B	Set Screw	Slip Ring Assembly	3-B	1
44	–	–		–	–
45	–	–		–	–
46	–	–		–	–
47	–	–		–	–
48	PRD40490A	Brush Assembly		1-B	1
49	–	–		–	–
50	–	–		–	–
51	–	–		–	–
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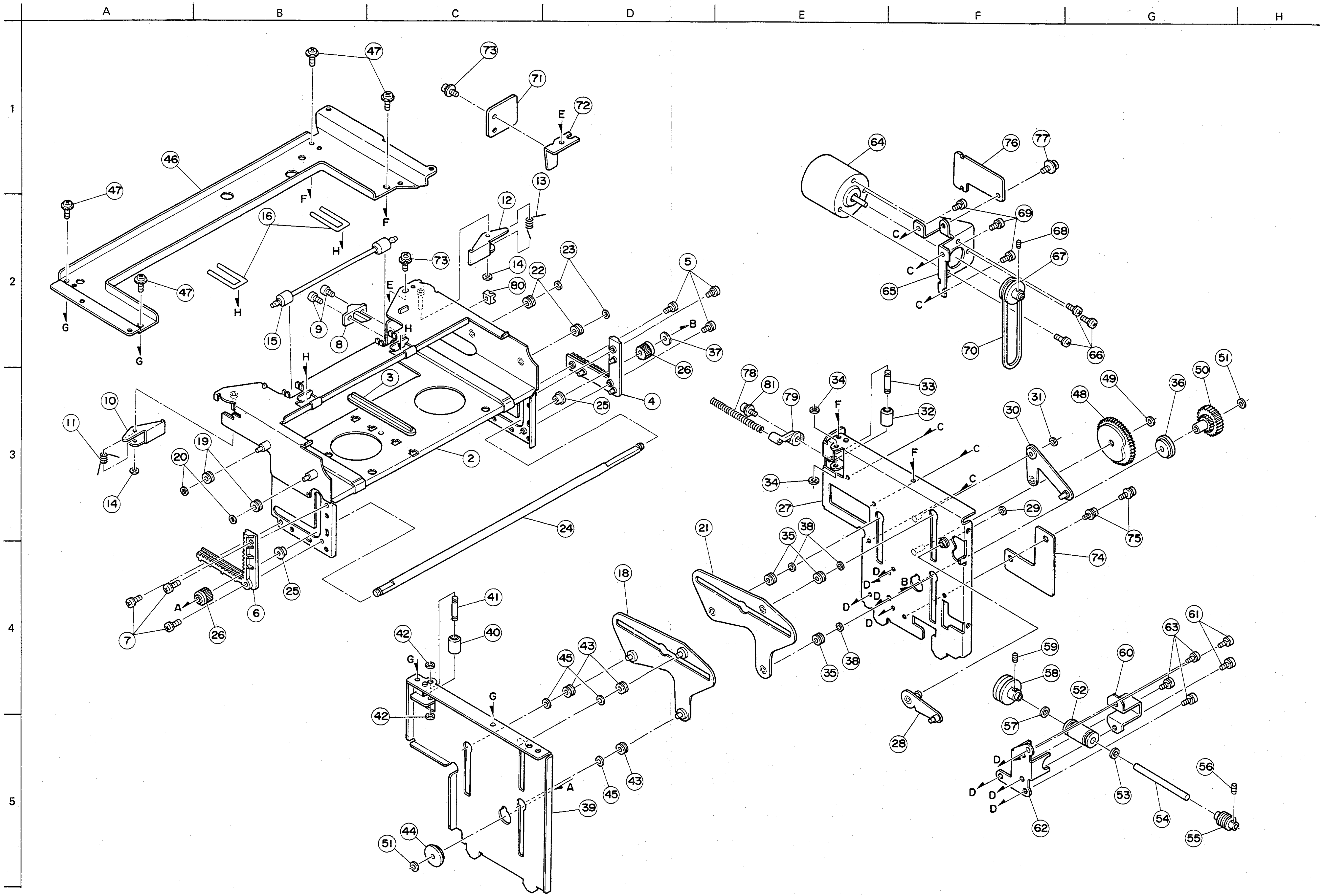
Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
56	–	–		–	–
57	DPSP3008ZY	Screw	for 48	1-B	1
58	–	–		–	–
59	–	–		–	–
60	PGD40077-1-2	Brush Base		1-C	1
61	DPSP3010ZY	Screw	for 60	1-C	2
62	PRD40221	Tape Guard (1)		4-E	1
63	BYS3005FS	S. Bolt	for 62	4-E	1
64	PRD40484A-01	Dynamic Damper Assembly	Incl. 65	3-G	1
65	YWS3003P	Set Screw	Dynamic Damper	2-G, 4-G	2
66	PRD40222	Tape Guard (2)		4-D	1
67	SDBP3006NY	Screw	for 67	4-D	1

5.2.12 Cassette compartment assembly



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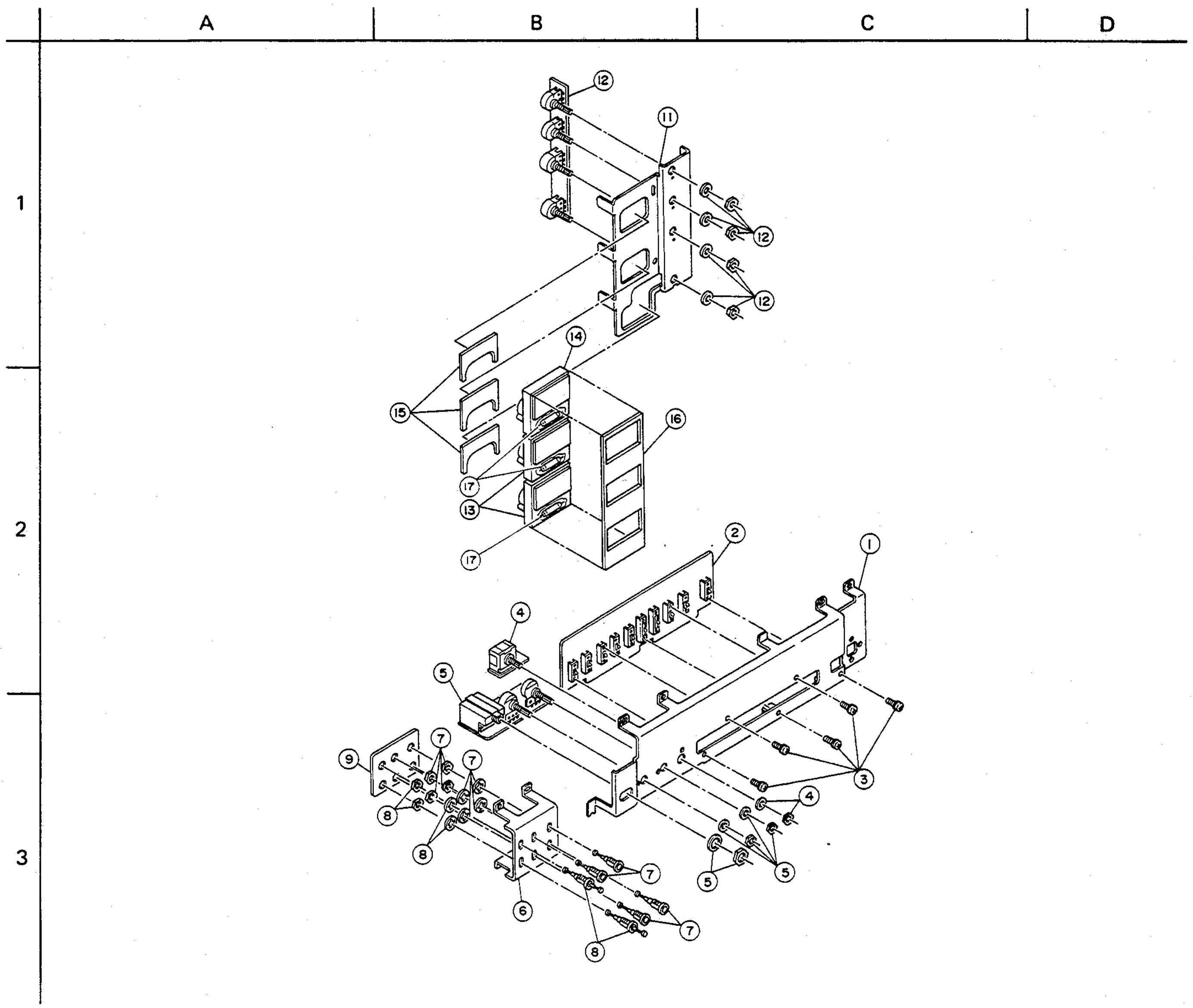
– Cassette compartment assembly list –

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
1	PUS27778D	Cassette Compartment Ass'y	Incl. 2 to 16 and 18 to 81	–	–
2	PRD20017A	Cassette Table Assembly		3-C	1
3	PRD40123	Guide Rail		3-C	1
4	PRD30007	Rack Gear (Right)		3-D	1
5	LPSP3006ZY	Screw	for 4	2-D	3
6	PRD30008	Rack Gear (Left)		4-B	1
7	LPSP3006ZY	Screw	for 6	4-A	3
8	PRD40124-1-2	Claw		2-B	1
9	SPSP3004MY	Screw	for 8	2-B	2
10	PRD40125	C. Striker (Left)		3-A	1
11	PRD40127	Spring		3-A	1
12	PRD40126	C. Striker (Right)		2-C	1
13	PRD40127-2	Spring		1-C	1
14	PQM30017-3	Slit Washer		2-C, 3-A	2
15	PRD40128A-1	Roller Assembly		2-B	1
16	PRD40131	Spring		2-B	2
17	–	–		–	–
18	PRD40132A	L. Side Plate Assembly		4-D	1
19	PRD40134	Roller		3-B	2
20	PQM30017-3	Slit Washer		3-A	2
21	PRD40135A	R. Side Plate Assembly		3-D	1
22	PRD40134	Roller		2-C	2
23	PQM30017-3	Slit Washer		2-D	2
24	PRD40136	Shaft		3-D	1
25	PRD40137	Bushing		3-D, 4-B	2
26	PRD40138	Pinion Gear		2-D, 4-B	2
27	PRD20006A-02	R. Side Wall Assembly		3-E	1
28	PRD40142A	Lid Lever A Assembly		5-F	1
29	PQM30017-10	Slit Washer		3-F	1
30	PRD40146A	Lid Lever B Assembly		3-F	1
31	PQM30017-3	Slit Washer		3-F	1
32	PRD40151	Roller		3-F	1
33	PRD40152	Shaft		3-F	1
34	REE1500	E-Ring		3-E	2
35	PRD40134	Roller		3-E, 4-E	3
36	PRD40153	Bushing		3-G	1
37	PRD40154	"		2-E	1
38	PQM30017-3	Slit Washer		3-E, 4-E	3
39	PRD20008	L. Side Wall		5-D	1
40	PRD40151	Roller		4-C	1
41	PRD40152	Shaft		4-C	1
42	REE1500	E-Ring		4-C	2
43	PRD40134	Roller		4-D, 5-D	3
44	PRD40153	Bushing		5-C	1
45	PQM30017-3	Slit Washer		4-D, 5-D	3
46	PRD20009-1-3	Mounting Bracket		1-A	1
47	DPSP30006ZY	Screw	for 46	1-A, -C, 2-A	4
48	PRD30009	Timing Gear		3-G	1
49	PQM30017-3	Slit Washer		3-G	1
50	PRD40155	Worm Wheel		2-G	1
51	PQM30017-10	Slit Washer		2-G, 5-C	2
52	PRD40161-1-1	Gear Housing		4-G	1
53	PRD30021	Bearing		5-G	1
54	PRD40169	Shaft		5-G	1
55	PRD40163	Worm Gear		5-G	1
56	YFS2603	Set Screw	Worm Gear	5-G	1
57	PRD30021	Bearing		5-F	1
58	PRD40164-1-2	Pulley		4-F	1
59	YFS2603	Set Screw	Pulley	4-F	1
60	PRD40165	Gear Holder		4-G	1
61	LPSP3006ZY	Screw	for 60	4-G	2
62	PRD40166	Gear Bracket		5-F	1
63	LPSP3006ZY	Screw	for 62	4-G	3
⚠ 64	PU48362-2	DC Motor	M1007, CASSETTE MOTOR	1-E	1
65	PRD40167	Motor Bracket		2-F	1
66	LPSP3006ZY	Screw	for 64	2-G	3
67	PRD40164-1-2	Pulley		2-F	1
68	YFS2603	Set Screw	Pulley	2-F	1
69	LPSP3006ZY	Screw	for 65	2-F	3
70	PRD30022-2	Belt		2-F	1
71	–	CC-3 Board Assembly	See Sec. 6.2.32.	1-C	1
72	PRD40168	PWB Bracket		1-D	1
73	DPSP3006ZY	Screw	for 72	1-C, 2-C	2
74	–	CC-2 Board Assembly	See Sec. 6.2.31.	4-G	1
75	DPSP3006ZY	Screw	for 74	3-G	2
76	–	CC-1 Board Assembly	See Sec. 6.2.30.	1-F	1
77	DPSP3006ZY	Screw	for 76	1-F	1
78	PRD40303	Tube		3-E	1
79	PRD40301	Wire Holder		3-E	1
80	PRD40302	Wire Mount		2-C	1
81	DPSP3006ZY	Screw	for 79	3-E	1

5.2.13 Mounting bracket assembly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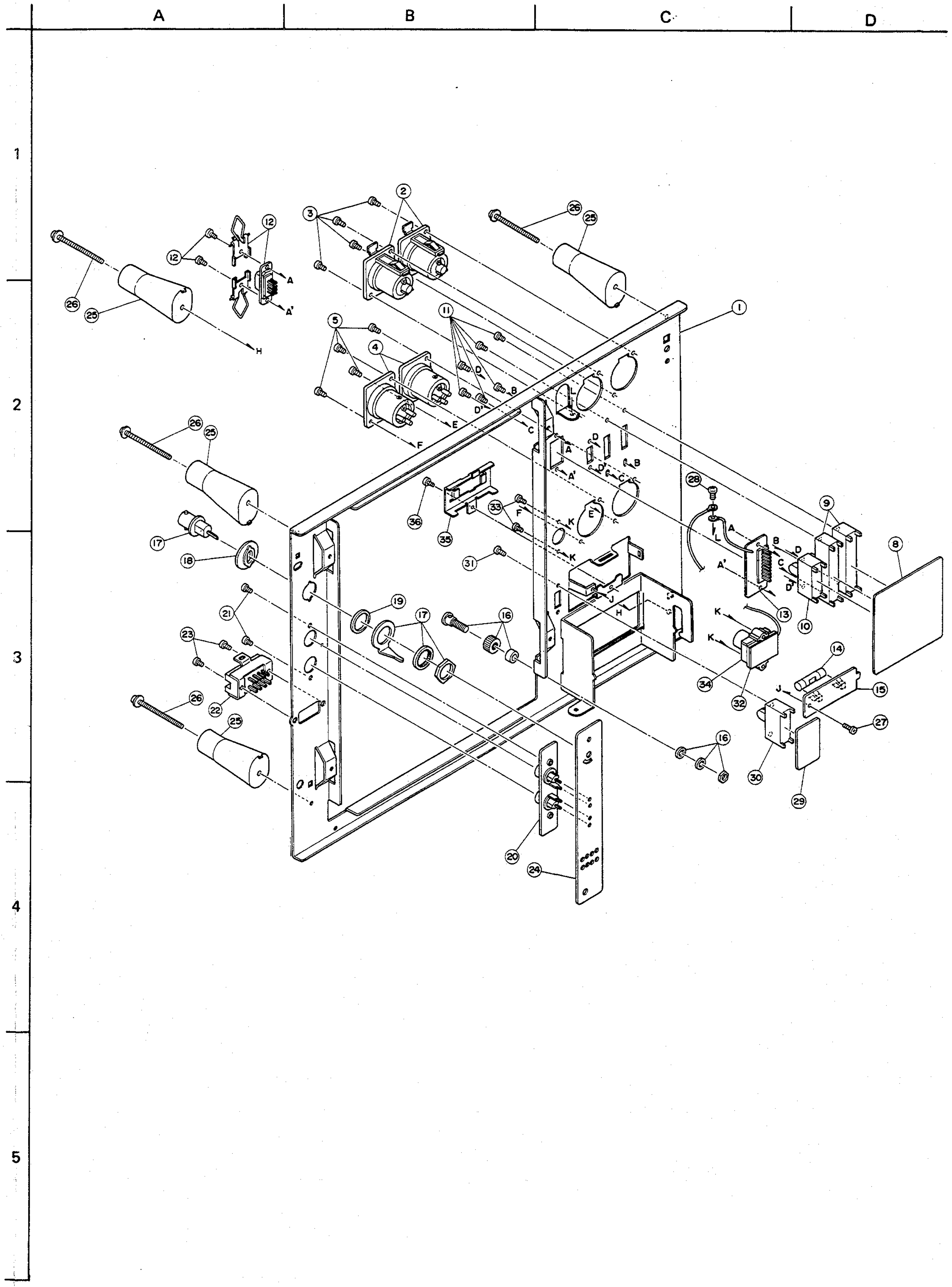
— Mounting bracket assembly list —

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
1	PGD20072-1-2	Mounting Bracket		2-C	1
2	—	Front Switch Board Assembly	See Sec. 6.2.7.	2-C	1
3	LPSP2604ZY	Screw	for 2	3-C	5
4	—	Code Switch Board	See Sec. 6.2.37.	2-B, 3-C	1
5	—	Phones Board	See Sec. 6.2.38.	2-B, 3-C	1
6	PGD40241	Test Pin Bracket		3-B	1
7	PGZ00106	Terminal	V.RF, VIDEO OUT, AUDIO OUT 1/2	3-B	4
8	PGZ00107	"	D. PULSE, GND	3-B	2
9	—	Test Pin Board	See Sec. 6.2.39.	3-A	1
10	—	—		—	—
11	PGD30221-01-03	VR & Meter Bracket		1-B	1
12	—	VR Board	See Sec. 6.2.41.	1-B, -C	1
13	PU53866-1-3	Meter	AUDIO-1 LEVEL, AUDIO-2 LEVEL, Incl. 17	2-B	2
14	PU53866-4	"	VIDEO LEVEL & TRACKING, Incl. 17	1-B	1
15	PGD40310	Cushion		2-B	3
16	PGD40240	Meter Sheet		2-B	1
17	PU53866-LAMP	Meter Lamp	for 13 x 2, 14 x 1	2-B	3

5.2.14 Connector panel assembly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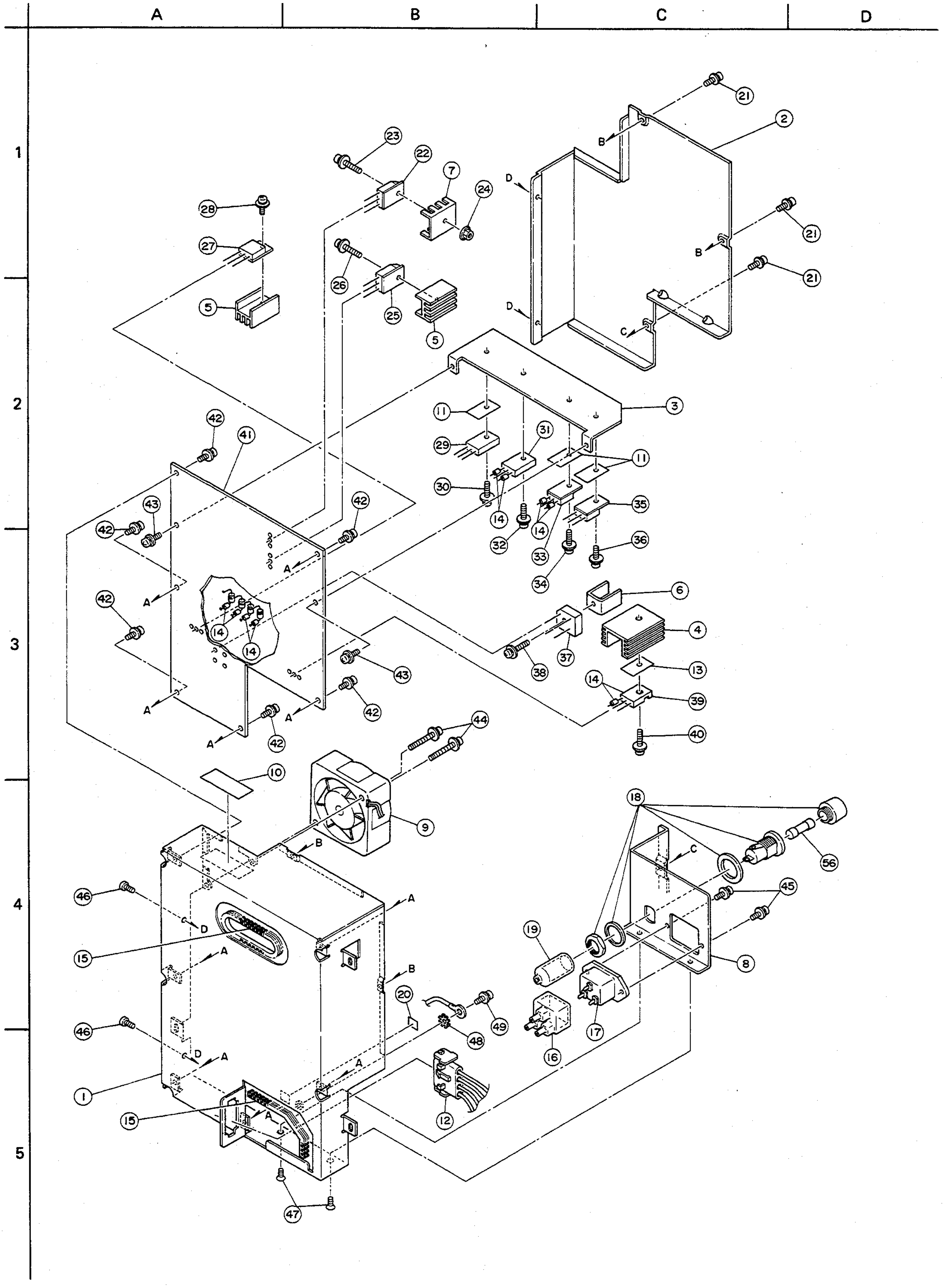
— Connector panel assembly list —

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
⚠ 1	PGD10094	Connector Panel		2-C	1
2	PGZ00438	XLR Connector	J1012, J1013, AUDIO IN (AUD-1, AUD-2)	1-B	2
3	SPBP2606RY	Screw	for 2	1-B	4
4	PGZ00456	XLR Connector	J1014, J1015, AUDIO OUT (AUD-1, AUD-2)	2-B	2
5	SPBP2606RY	Screw	for 4	2-B	4
6	—	—		—	—
7	—	—		—	—
8	—	Audio Level Switch Board		3-D	1
9	—	Slide Switch	SW1, SW2 — See Sec. 6.2.46.	2-D	2
10	—	"	SW3	3-D	1
11	SDSP2604MY	Screw	for 9 x 4, 10 x 2	2-B	6
12	PGZ00220	9-pin Connector	REMOTE-1	1-A	1
13	—	Remote-1 Connector Board	See Sec. 6.2.47.	3-C	1
14	PU44629	Hour Meter		3-D	1
15	—	Hour Meter Board	See Sec. 6.2.53.	3-D	1
16	PGZ00110	Earth Terminal		3-B, 3-C	1
17	PGZ00440	BNC Connector	J1001, EXT. SYNC IN	3-A,-B	1
18	PU48611	Ring		3-A	1
19	Q03093-439	Washer		3-B	1
20	PGZ00221-2	2-pin Jack Assembly	J1002/J1003, TIME CODE IN/OUT	4-B	1
21	SDSP3008MY	Screw	for 20	3-A	2
22	PGZ00222	8-pin Connector	J1004, TV MONITOR	3-A	1
23	SPSP2608ZY	Screw	for 22	3-A	2
24	—	Connector Board	See Sec. 6.2.48.	4-C	1
25	PGD40468	Foot		1-C, 2-A, 3-A	4
26	DPSP4040ZY	Screw	for 25	1-C, 2-A, 3-A	4
27	SBST3008ZY	"	for 15	3-D	1
28	SBST3008ZY	"	for 13	2-C	1
29	—	Color Cut Switch Board	See Sec. 6.2.45.	4-D	1
30	—	Slide Switch	SW1 See Sec. 6.2.45.	3-C	1
31	SDSP2604MY	Screw	for 29	3-B	1
32	—	RCA Board	See Sec. 6.2.54.	3-C	1
33	SDSF3008MY	Screw	for 32	2-B	2
34	PGZ00439	RCA 1-P Connector	AUDIO MONITOR	3-C	1
35	PGD40031	Lens Holder		3-B	1
36	SBST3008ZY	Screw	for 35	2-B	1

5.2.15 Switching regulator assembly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19
15
A
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16
46
D
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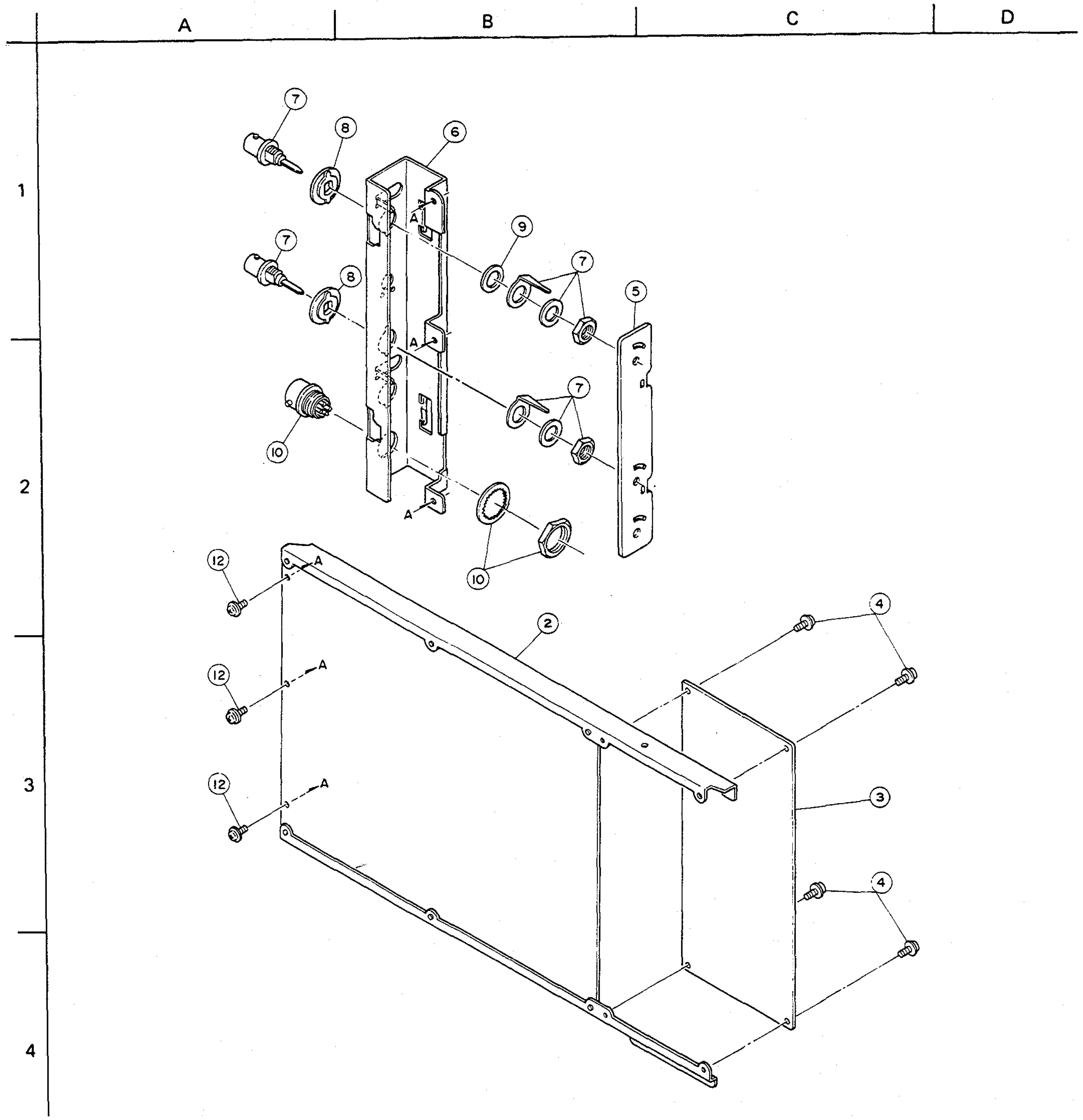
15
A
5
47

– Switching regulator assembly list –

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
1	PGZ00435-001	Chassis		5-A	1
2	" -002	Regulator Cover		1-C	1
⚠ 3	" -003	Heat Sink (A)	for Q5, Q6, D17 and D25	2-C	1
⚠ 4	" -004	" (B)	for Q1	3-C	1
⚠ 5	" -005	" (C)	for IC3 and SCR1	2-A,-B	2
⚠ 6	" -006	" (D)	for D1	3-C	1
⚠ 7	" -007	" (E)	for IC2	1-B	1
⚠ 8	" -008	AC Cover		4-C	1
9	" -009	Fan Motor	Incl. 2-P Connector	4-B	1
⚠ 10	" -010	Name Plate		3-A	1
⚠ 11	" -011	Silicon Rubber A	for Q5, Q6 and D25	2-B,-C	3
⚠ 12	" -012	Plug Assembly	CN4—CN5 (CN1) Incl. Housing, Pin, Wire	5-B	1
⚠ 13	" -013	Silicon Rubber B	for Q1	3-C	1
⚠ 14	–	Ferrite Beads	K1 to K9, See Sec. 6.2.51.	2-B,-C,3-A,-C	9
15	PGZ00211-018	Nylon Grommet		4-A, 5-A	2
⚠ 16	PU52931	AC Connector Cover		5-C	1
⚠ 17	PGZ00211-015	AC Connector		5-C	1
⚠ 18	" -014	Fuse Holder		4-C	1
⚠ 19	PU50316	Fuse Holder Cover		4-B	1
⚠ 20	PGZ00211-023	Earth Label		4-B	1
21	DPSP3006Z	Screw	for 2	1-C,-D	3
22	–	Integrated Circuit	IC2, See Sec. 6.2.51.	1-B	1
23	DPSP3012Z	Screw	for 22	1-B	1
24	NS3000N	Nut		1-B	1
25	–	Integrated Circuit	IC3, See Sec. 6.2.51.	2-B	1
26	DPSP3012Z	Screw	for 25	2-B	1
27	–	Thyristor	SCR1, See Sec. 6.2.51.	1-A	1
28	DPSP3008Z	Screw	for 27	1-A	1
29	–	Transistor	Q6, See Sec. 6.2.51.	2-B	1
30	DPSP3008Z	Screw	for 29	2-B	1
31	–	Diode	D17, See Sec. 6.2.51.	2-C	1
32	DPSP3010Z	Screw	for 31	3-B	1
33	–	Diode	D25, See Sec. 6.2.51.	3-C	1
34	DPSP3010Z	Screw	for 33	3-C	1
35	–	Transistor	Q5, See Sec. 6.2.51.	2-C	1
36	DPSP3010Z	Screw	for 35	3-C	1
37	–	Diode	D1, See Sec. 6.2.51.	3-C	1
38	DPSP3012Z	Screw	for 37	3-C	1
39	–	Transistor	Q1, See Sec. 6.2.51.	3-C	1
40	DPSP3010Z	Screw	for 39	3-C	1
⚠ 41	–	Switching Regulator Board	See Sec. 6.2.51.	2-A	1
42	DPSP3006Z	Screw	for 41	2-A,-B,3-A,-B	6
43	DPSP3006Z	"	for 3	2-A, 3-B	2
44	DPSP3030Z	"	for 9	3-B	2
45	LPSP3010NY	"	for 8	4-C,-D	2
46	SDSP3006Z	"	for 1	4-A, 5-A	2
47	SSSP3006Z	"	for 1	5-B	2
48	WLS4000N	Washer		5-B	1
49	SPSP4006NY	Screw	for Earth Wire	4-B	1
50	–	–		–	–
51	–	–		–	–
52	–	–		–	–
53	–	–		–	–
54	–	–		–	–
⚠ 55	PGZ00435B-01	Switching Regulator Assembly	Incl. 1 to 49	–	1
⚠ 56	QMF51E2-4R0	Fuse	F001, T4.0A/250V	4-D	1

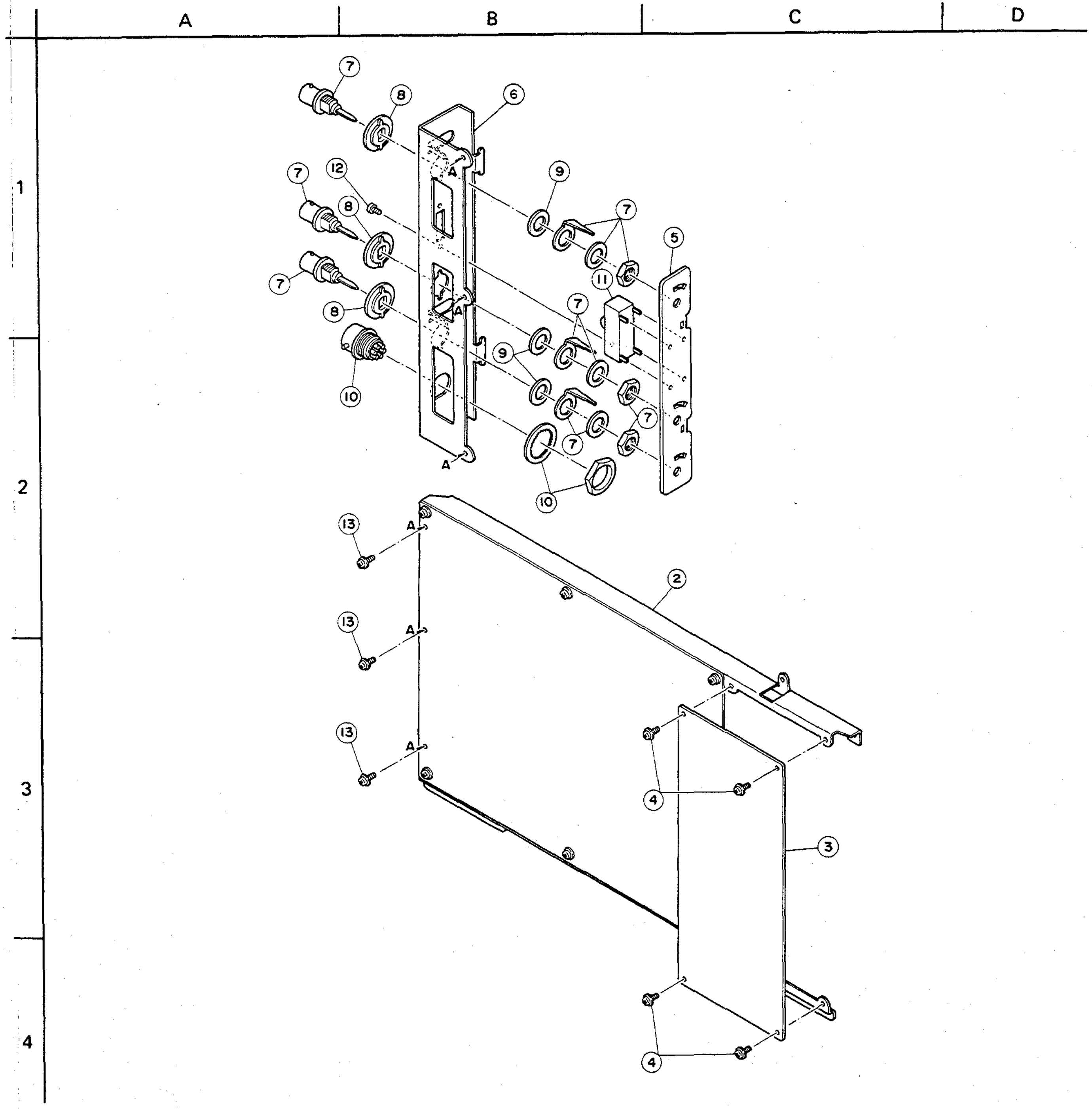
5.2.16 Video in terminal assembly



– Video in terminal assembly list –

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
1	PGD40235D	Video Rec/P.B. Assembly	Incl. 2 to 10 and 12	–	–
2	–	Video Rec/P.B. Board Assembly	See Sec. 6.2.1.	2-B	1
3	–	PAL CTL Board Assembly	See Sec. 6.2.8.	3-C	1
4	GBST3008ZY	Tapping Screw	for 3	2-C, 3-C	4
5	–	Video In Terminal Board Ass'y	Incl. 6 to 10, See Sec. 6.2.49.	1-B	1
6	–	Video In Bracket		1-B	1
7	–	BNC Connector	J1005, J1007	1-A,-B, 2-B	2
8	–	Ring		1-B	2
9	–	Washer		1-B	1
10	–	7-pin Connector	J1020	2-A, -B	1
11	–	–		–	–
12	GBST3008ZY	Tapping Screw	for 2	2-A, 3-A	3

5.2.17 Video out terminal assembly



– Video out terminal assembly list –

Symbol No.	Part No.	Part Name	Description	Symbol No. Position	Q'ty
1	PGD40236D	Y/C Out Assembly	Incl. 2 – 14	–	–
2	–	Y/C Out Board Assembly	See Sec. 6.2.2.	2-C	1
3	–	Reel Servo Board Assembly	See Sec. 6.2.14.	3-C	1
4	GBST3008ZY	Tapping Screw	for 3	3-B, 4-B	4
5	–	Video Out Terminal Board Ass'y	Incl. 6–12, See Sec. 6.2.50.	1-C	1
6	–	Video Out Bracket		1-B	1
7	–	BNC Connector	J1009, J1010, J1011	1-A,-B, 2-B	3
8	–	Ring		1-A,-B	3
9	–	Washer		1-B, 2-B	3
10	–	7-pin Connector	J1021	2-A,-B	1
11	–	Slide Switch	SW1	1-B	1
12	–	Screw	for 11	1-A	1
13	GBST3008ZY	Tapping Screw	for 2	2-B, 3-B	3

SECTION 6
ELECTRICAL PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

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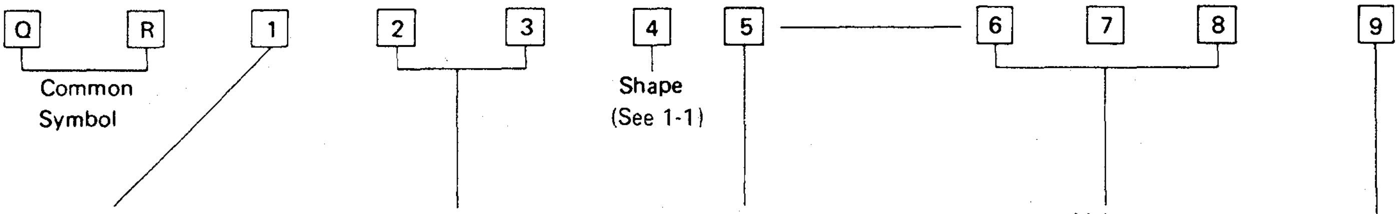
6.1 STANDARD PART NUMBER CODING

6.1.1 Fixed Resistor Coding



Type of resistor

C	Composition Resistor
D	Carbon Resistor
F	Unflammable Resistor
G	Oxide Metal Film Resistor
M	Metal Plate Resistor
X	Metal Film Resistor
W	Wire Wound Resistor
Y	Wire Wound Resistor
V	Metal Film Resistor, High Stability
Z	Special Resistor
S	Chip Resistor

Rated Wattage

Symbol	Rated wattage
16	1/6 (W)
18	1/8 "
14	1/4 "
12	1/2 "
01	1 "
02	2 "
03	3 "
04	4 "
05	5 "
06	6 "
07	7 "
75	7.5 "
08	8 "
10	10 "
15	15 "
20	20 "
30	30 "

Tolerance

Symbol	Tolerance
F	±1 %
G	±2 %
J	±5 %
K	±10 %
M	±20 %

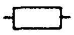
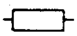
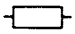
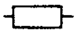
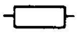
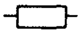
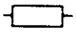
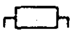
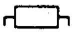
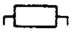
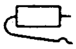
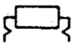
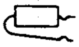
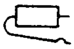
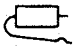
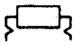
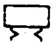
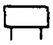
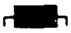
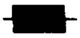
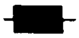
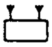
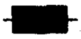
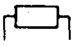
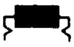
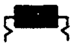
Values

–Example –		
R47	....	0.47 Ω
4R7	....	4.7 Ω
470	.....47 x 10^0	47 Ω
471	.....47 x 10^1	470Ω
472	.....47 x 10^2	4.7 KΩ
473	.....47 x 10^3	47 KΩ
474	.....47 x 10^4	470 KΩ
475	.....47 x 10^5	4.7 MΩ
10R2	....	10.2 Ω
1430	... 143 x 10^0	143 Ω
1581	... 158 x 10^1	1.58 KΩ

Size

Symbol	Size
A	Small Size
S	Small Size

1-1) Shape of resistor (■ : Flame retardant resistor)

Sort	C	D	G	F	M	W	X	Y	V
1									
2									
3									
4									
5						L type			
6						Resin Covered			
7						Enameled			
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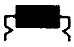
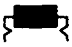
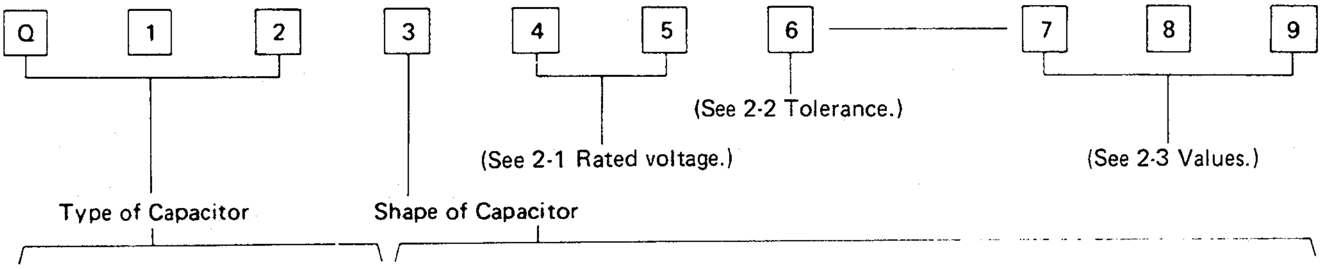
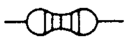
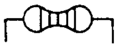
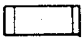
9									

6.1.2 Fixed Capacitor Coding


Q
1
2
3
4
5
6
7
8
9
(See 2-2 Tolerance.)
(See 2-1 Rated voltage.)
(See 2-3 Values.)
Type of Capacitor
Shape of Capacitor

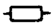
Ceramic Capacitors

Symbol	Type of Capacitor	Disk Lead	Kink Lead			
QCC	Ceramic			4	5	
QCF	"	1	3			
QCS	"	1	3			
QCT	Temperature compensation					
QCX	Special			1	3	
QCY	Ceramic	1, 4	3			8
QCZ	Special					

Electrolytic Capacitors

Symbol	Type of Capacitor	Tubular	Mono-direction	Anti-stress	Forming	Snap-in
QEA	Characteristic A	2	4			
QEB	Low Leakage		4	5	6	
QED	Characteristic D	2	4			
QEE	Tantalum		4	5		
QEE	" (small type)		8			
QEK	Characteristic W (subminiature type)		4	5		
QEL	Characteristic L					7
QEN	Non-polar	2	4	5	6	
QET	Characteristic W (small type)	2	4	5	6	
QEW	Characterisitc W	2	4	5	6	7
QEZ	Special					

Paper Film Capacitors

Symbol	Type of Capacitor	Tubular	Normal		Flame retardant	
			Mono-direction	Kink Lead	Mono-direction	Kink Lead
QFF	Film mica		4			
QFH	Metalized mylar	2	4	3	5	6
QFM	Mylar	2	4	3, 7	5	6
QFN	" (small type)		4			
QFP	Polypropylene		4	3		
QFS	Polystyrole	2	4	3		
QFZ	Special					

2-1) Rated voltage (V)

2nd letter First letter	A	B	C	D	E	F	G	H	J	K	V	W	X
0						3.15			6.3				
1	10		16	20	25		40	50	63		35		
2	100	125	160	200	250	315	400	500	630		350	450	600
3	1000	1250		2000				5000					

2-2) Tolerance

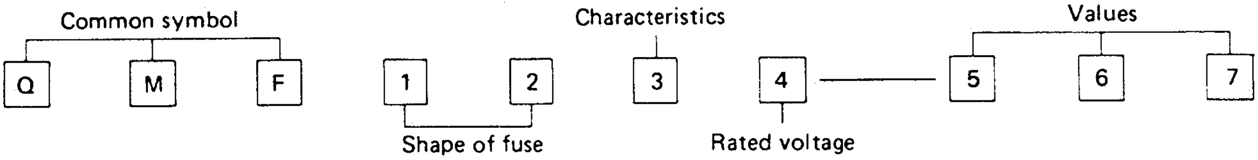
Symbol	F	G	J	K	M	N	Z	P	A	H	R
(%)	± 1	± 2	± 5	± 10	± 20	± 30	+ 80 − 20	+ 100 − 0	+ 100 − 10	+ 50 − 10	+ 30 − 10

2-3) Values

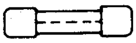
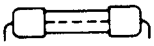
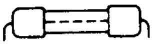
– Example – Values are in picofarads.

101 ..... 10 x 10^1 ..... 100 pF
102 ..... 10 x 10^2 ..... 1,000 pF = 0.001 μF
103 ..... 10 x 10^3 ..... 10,000 pF = 0.01 μF
104 ..... 10 x 10^4 ..... 100,000 pF = 0.1 μF
5R0 ..... 5.0 ..... 5 pF

6.1.3 Fuse Coding



Shape of Fuse (first and second digit)

Symbol No.	Shape	Remarks
51		ϕ 5.2 x 20 mm
60		ϕ 6.4 x 30 mm
61		ϕ 6.35 x 31.8 mm
63		With 60 Lead Wire
66		With 61 Lead Wire

Rated Voltage (fourth digit)

Symbol No.	Rated Voltage	
1	AC 125 V	
2	AC 250 V	
3	100 mA ≀ 1 A	AC 250 V
	1.25 A ≀ 6.3 A	AC125 V

Value (fifth – seventh digit)

– Example –

R10 .... 100 mA
R125 .... 125 mA
1R0 .... 1.0 A
1R2 .... 1.2 A
1R25 .... 1.25 A
100 .... 10 A

Characteristics (third digit)

Symbol No.	Fusing Current	Fusing Time	Remarks
S	160%	Within 1 hr.	Anti-rush Type
	200%	〃 2 min.	
	700% – 2000%	〃 0.01 sec.	
R	160%	〃 1 hr.	Regular Fusible Type
	200%	〃 2 min.	
M	135%	〃 1 hr.	Regular Fusible Type (for UL)
	200%	〃 2 min.	
U	135%	〃 1 hr.	Anti-rush Type (for UL)
	200%	〃 2 min.	
	800% – 2000%	〃 0.01 sec.	
A	210%	〃 2 min.	Anti-rush Type (for Europe)
	275%	0.5 – 10 sec.	
	400%	0.15 – 2 sec.	
	1000%	0.02 – 0.3 sec.	
B	210%	Within 30 min.	Regular Fusible Type (for SEMKO, Europe)
	275%	0.05 – 2 sec.	
	400%	0.01 – 0.3 sec.	
C	135%	Within lhr.	Anti-rush Type (for UL, Japan)
	200%	〃 2 min.	

6.2.1 Video REC/PB board assembly $\boxed{0}$ $\boxed{1}$ PGE10025B-01

Symbol No.	Part No.	Part Name	Description
IC 1	10VT19	Integrated Circuit	
IC 2	14VT10	"	
IC 3	6VT04	"	
IC 4	TA7348P	"	
IC 5	7VT08	"	
IC 6	"	"	
IC 7	LA7016	"	
IC 8	AN608P	"	
IC 9	—	—	
IC10	—	—	
IC11	—	—	
IC12	AN6300	Integrated Circuit	
IC13	7VT05	"	
IC14	AN608P	"	
IC15	TA7348P	"	
IC16	6VT04	"	
IC17	—	—	
IC18	AN305	Integrated Circuit	
IC19	—	—	
IC20	6VT04	Integrated Circuit	
IC21	TA7348P	"	
IC22	TA7347P	"	
IC23	TC4528BP	"	
IC24	—	—	
IC25	6VT04	Integrated Circuit	
IC26	TA7348P	"	
IC51	TC4069UBP	Integrated Circuit	
IC52	TL592P	"	
IC53	"	"	
IC54	AN607P	"	
IC55	TA7348P	"	
IC56	6VT04	"	
IC57	TA7348P	"	
IC58	BA401	"	
IC59	"	"	
IC60	UPC1163H	"	
IC61	LA7016	"	
IC62	SN76670N	"	
IC63	AN607P	"	
IC64	7VT05	"	
IC65	UPC1163H	"	
IC66	UPC311C	"	
IC67	TL592P	"	
IC68	—	—	
IC69	—	—	
IC70	TA7348P	Integrated Circuit	
IC71	6VT04	"	
IC72	AN607P	"	

Symbol No.	Part No.	Part Name	Description
Q 1	2SC2647C	Transistor	
Q 2	2SB641Q,R	"	
Q 3	2SC2647C	"	
Q 4	"	"	
Q 5	—	—	
Q 6	2SC2647C	Transistor	
Q 7	"	"	
Q 8	"	"	
Q 9	"	"	
Q10	—	—	
Q11	—	—	
Q12	—	—	
Q13	2SC2647C	Transistor	
Q14	"	"	
Q15	2SB641Q,R	"	
Q16	2SC2647C	"	
Q17	"	"	
Q18	"	"	
Q19	2SB641Q,R	"	
Q20	2SC2647C	"	
Q21	"	"	
Q22	"	"	
Q23	"	"	
Q24	—	—	
Q25	2SC2647C	Transistor	
Q26	"	"	
Q27	—	—	
Q28	2SC2647C	Transistor	
Q29	"	"	
Q30	DTC144EF	D. Transistor	
Q31	2SC2647C	Transistor	
Q32	"	"	
Q33	"	"	
Q34	"	"	
⚠ Q35	"	"	
Q36	2SB641Q,R	"	
Q37	2SC2647C	"	
Q38	"	"	
Q39	—	—	
Q40	2SC2647C	Transistor	
Q41	"	"	
Q42	"	"	
Q43	"	"	
Q44	—	—	
Q45	—	—	
Q46	—	—	
Q47	—	—	
Q48	—	—	
Q49	—	—	
Q50	—	—	
Q51	DTA144EF	D. Transistor	
Q52	2SC2647C	Transistor	
Q53	"	"	
Q54	2SC2771-4.5	"	
Q55	2SC2647C	"	
C56	"	"	
C57	2SC2771-4.5	"	
Q58	2SC2647C	"	
Q59	—	—	
C60	2SC2647C	Transistor	
Q61	"	"	
Q62	DTC144EF	D. Transistor	
Q63	2SC2647C	Transisitor	
Q64	"	"	
Q65	"	"	

Symbol No.	Part No.	Part Name	Description
Q66	2SC2647C	Transistor	
Q67	"	"	
Q68	"	"	
Q69	"	"	
Q70	"	"	
Q71	"	"	
Q72	"	"	
Q73	–	–	
Q74	–	–	
Q75	2SC2647C	Transistor	
Q76	"	"	
Q77	"	"	
Q78	"	"	
Q79	2SB643Q,R	"	
Q80	DTC144EF	D. Transistor	
Q81	2SC2647C	Transistor	
Q82	"	"	
Q83	–	–	
Q84	2SC2647C	Transistor	
Q85	–	–	
Q86	2SC2647C	Transistor	
Q87	"	"	
Q88	"	"	
Q201	2SC2647C	Transistor	
Q202	–	–	
Q203	2SC2647C	Transistor	
Q204	"	"	
Q205	2SB641Q,R	"	
Q206	2SC2647C	"	
Q207	"	"	
Q208	"	"	
Q251	2SC2647C	Transistor	
Q252	2SB641Q,R	"	
Q253	2SC2647C	"	
Q254	DTC144EF	D. Transistor	
D 1	1SS133	Diode	
D 2	1SS135	"	
D 3	"	"	
D 4	1SS133	"	
D 5	"	"	
D 6	–	–	
D 7	1SS99	Diode	
D 8	"	"	
D 9	–	–	
D10	–	–	
D11	1SS133	Diode	
D12	1SS99	"	
D13	"	"	
D14	1SS133	"	
D15	FC54M-4.5.6	Vari. Cap.	
D51	RD2.4EB	Zener Diode	
D52	"	"	
D53	–	–	
D54	1SS99	Diode	
D55	"	"	
D56	1SS133	"	

Symbol No.	Part No.	Part Name	Description
R 1	QRD167J-102	CR	
R 2	" -102	"	
R 3	" -821	"	
R 4	" -473	"	
R 5	" -222	"	
R 6	" -101	"	
R 7	" -183	"	
R 8	" -122	"	
R 9	" -122	"	
R10	" -471	"	
R11	" -562	"	
R12	" -103	"	
R13	QVZ3506-223	VR	P. WID. A
R14	" -222	"	S. THR. A
R15	QRD167J-104	CR	
R16	" -104	"	
R17	" -122	"	
R18	" -390	"	
R19	–	–	
R20	QRD167J-103	CR	
R21	" -680	"	
R22	" -103	"	
R23	" -223	"	
R24	" -821	"	
R25	–	–	
R26	QRD167J-102	CR	
R27	–	–	
R28	QRD167J-821	CR	
R29	–	–	
R30	QVZ3506-102	VR	B/W. DEVI
R31	QRD167J-750	CR	
R32	" -331	"	
R33	" -332	"	
R34	" -391	"	
R35	" -561	"	
R36	" -562	"	
R37	" -102	"	
R38	" -102	"	
R39	–	–	
R40	QRD167J-393	CR	
R41	" -473	"	
R42	" -332	"	
R43	" -102	"	
R44	" -102	"	
R45	" -102	"	
R46	QVZ3506-102	VR	COL. DEVI
R47	QRD167J-562	CR	
R48	" -562	"	
R49	–	–	
R50	–	–	
R51	–	–	
R52	–	–	
R53	–	–	
R54	–	–	
R55	–	–	
R56	–	–	
R57	–	–	
R58	–	–	
R59	–	–	
R60	–	–	
R61	–	–	
R62	–	–	
R63	–	–	
R64	–	–	
R65	–	–	

Video R/P

Symbol No.	Part No.	Part Name	Description
R66	QRD167J-182	CR	
R67	″ -221	″	
R68	″ -122	″	
R69	″ -222	″	
R70	″ -272	″	
R71	″ -392	″	
R72	″ -102	″	
R73	″ -122	″	
R74	″ -471	″	
R75	″ -102	″	
R76	QVZ3506-104	VR	AGC LEV
R77	QRD167J-103	CR	
R78	″ -564	″	
R79	″ -222	″	
R80	″ -272	″	
R81	″ -821	″	
R82	″ -101	″	
R83	″ -102	″	
R84	″ -222	″	
R85	QVZ3506-222	VR	MOD BAL
R86	QRD167J-222	CR	
R87	″ -821	″	
R88	″ -222	″	
R89	″ -472	″	
R90	″ -272	″	
R91	″ -332	″	
R92	″ -392	″	
R93	″ -101	″	
R94	″ -222	″	
R95	″ -392	″	
R96	″ -472	″	
R97	″ -821	″	
R98	″ -102	″	
R99	″ -272	″	
R100	″ -101	″	
R101	″ -103	″	
R102	″ -103	″	
R103	″ -103	″	
R104	″ -472	″	
R105	″ -562	″	
R106	″ -680	″	
R107	–	–	
R108	–	–	
R109	–	–	
R110	QRD167J-100	CR	
R111	–	–	
R112	QRD167J-101	CR	
R113	″ -100	″	
R114	″ -102	″	
R115	″ -683	″	
R116	″ -123	″	
R117	″ -102	″	
R118	″ -471	″	
R119	–	–	
R120	–	–	
R121	–	–	
R122	QRD167J-102	CR	
R123	–	–	
R124	–	–	
R125	QRD167J-821	CR	
R126	″ -223	″	
R127	″ -105	″	
R128	″ -182	″	
R129	″ -102	″	
R130	″ -332	″	

Symbol No.	Part No.	Part Name	Description
R131	QRD167J-561	CR	
R132	″ -102	″	
R133	″ -563	″	
R134	″ -223	″	
R135	″ -222	″	
R136	QVZ3506-471	VR	C. DELAY
R137	QRD167J-222	CR	
R138	–	–	
R139	–	–	
R140	–	–	
R141	–	–	
R142	–	–	
R143	–	–	
R144	–	–	
R145	QRD167J-821	CR	
R146	″ -821	″	
R147	″ -103	″	
R148	″ -102	″	
R149	″ -472	″	
R150	″ -103	″	
R151	″ -100	″	
R152	″ -680	″	
R153	″ -332	″	
R154	QVZ3506-103	VR	VIDEO M ADJ
R155	″ -223	″	SW. DC BAL
R156	QRD167J-104	CR	
R157	″ -181	″	
R158	″ -181	″	
R159	″ -333	″	
R160	″ -392	″	
R161	″ -152	″	
R162	″ -181	″	
R163	″ -152	″	
R164	″ -682	″	
R165	″ -152	″	
R166	″ -472	″	
R167	QVZ3506-223	VR	F. POS
R168	″ -223	″	B. WID
R169	QRD167J-103	CR	
R170	QVZ3506-223	VR	5.36M ADJ
R171	QRD167J-104	CR	
R172	″ -103	″	
R173	″ -153	″	
R174	″ -560	″	
R175	QVZ3506-222	VR	CONV. LEV
R176	″ -472	″	5.36M LEV
R177	QRD167J-331	CR	
R178	″ -472	″	
R179	″ -750	″	
R180	″ -563	″	
R181	″ -563	″	
R182	–	–	
R183	QRD167J-391	CR	
R184	–	–	
R185	QRD167J-391	CR	
R186	–	–	
R187	–	–	
R188	–	–	
R189	QRD167J-471	CR	
R190	″ -471	″	
R191	QVZ3506-471	VR	DUB. C. DELAY
R192	QRD167J-821	CR	
R193	–	–	
R194	–	–	
R195	–	–	

Symbol No.	Part No.	Part Name	Description
R196	QRD167J-102	CR	
R197	″ -102	″	
R198	—	—	
R199	—	—	
R200	QRD167J-391	CR	
R201	″ -332	″	
R202	″ -391	″	
R203	—	—	
R204	QRD167J-821	CR	
R205	QVZ3506-681	VR	EE FREQ.
R206	—	—	
R207	QRD167J-103	CR	
R301	QRD167J-181	CR	
R302	″ -333	″	
R303	″ -183	″	
R304	″ -102	″	
R305	″ -821	″	
R306	QVZ3506-152	VR	REC PH EQ1
R307	—	—	
R308	—	—	
R309	—	—	
R310	QRD167J-563	CR	
R311	″ -750	″	
R312	″ -473	″	
R313	″ -183	″	
R314	″ -222	″	
R315	″ -122	″	
R316	″ -101	″	
R317	″ -331	″	
R318	″ -102	″	
R319	″ -471	″	
R320	″ -102	″	
R321	″ -102	″	
R322	—	—	
R323	QRD167J-222	CR	
R324	″ -222	″	
R325	″ -471	″	
R326	—	—	
R327	—	—	
R328	QRD167J-271	CR	
R329	″ -271	″	
R330	″ -0R0	″	
R331	″ -561	″	
R332	QVZ3506-152	VR	REC B/W F
R333	QRD167J-271	CR	
R334	″ -222	″	
R335	″ -0R0	″	
R336	″ -472	″	
R337	QRD163J-101	″	
R501	QRD167J-104	CR	
R502	″ -104	″	
R503	″ -104	″	
R504	″ -104	″	
R505	″ -104	″	
R506	″ -104	″	
R507	″ -222	″	
R508	″ -222	″	
R509	″ -222	″	
R510	″ -222	″	
R511	″ -222	″	
R512	″ -222	″	
R513	″ -332	″	
R514	″ -103	″	
R515	″ -222	″	
R516	″ -222	″	
R517	QVZ3506-101	VR	C LEV 2
R518	″ -101	″	C LEV 1
R519	QRD167J-561	CR	
R520	″ -750	″	
R521	″ -103	″	
R522	″ -333	″	
R523	″ -333	″	
R524	QRD167J-333	CR	
R525	″ -333	″	
R526	″ -221	″	
R527	QVZ3506-472	VR	FM LEV 1
R528	QRD167J-181	CR	
R529	″ -181	″	
R530	″ -332	″	
R531	″ -332	″	
R532	″ -392	″	
R533	″ -102	″	
R534	″ -470	″	
R535	″ -470	″	
R536	QVZ3506-472	VR	REC FREQ 1
R537	QRD167J-102	CR	
R538	″ -333	″	
R539	″ -333	″	
R540	″ -333	″	
R541	″ -333	″	
R542	″ -221	″	
R543	QVZ3506-472	VR	FM LEV 2
R544	QRD167J-181	CR	
R545	″ -181	″	
R546	″ -332	″	
R547	″ -332	″	
R548	″ -392	″	
R549	″ -102	″	
R550	″ -470	″	
R551	″ -470	″	
R552	QVZ3506-472	VR	REC FREQ 2
R553	QRD167J-102	CR	
R554	—	—	
R555	—	—	
R556	QRD167J-122	CR	
R557	″ -222	″	
R558	″ -152	″	
R559	″ -222	″	
R560	″ -101	″	
R561	″ -472	″	
R562	″ -103	″	
R563	″ -103	″	
R564	″ -181	″	
R565	″ -222	″	
R566	″ -222	″	
R567	″ -181	″	
R568	″ -331	″	
R569	—	—	
R570	QRD167J-151	CR	
R571	″ -331	″	
R572	—	—	
R573	QRD167J-223	CR	
R574	″ -151	″	
R575	″ -331	″	
R576	″ -103	″	
R577	″ -331	″	
R578	″ -182	″	
R579	″ -822	″	
R580	″ -822	″	
R581	″ -470	″	
R582	—	—	
R583	QRD167J-271	CR	
R584	″ -102	″	
R585	″ -102	″	
R586	″ -103	″	
R587	″ -223	″	
R588	QVZ3506-223	VR	LIM BAL 1

Video R/P

Symbol No.	Part No.	Part Name	Description
R589	QRD167J-823	CR	
R590	″ -181	″	
R591	″ -102	″	
R592	″ -222	″	
R593	″ -222	″	
R594	″ -392	″	
R595	″ -391	″	
R596	″ -102	″	
R597	″ -823	″	
R598	″ -153	″	
R599	QVZ3506-223	VR	CARRI BAL 1
R600	QRD167J-821	CR	
R601	″ -112	″	
R602	QVZ3506-222	VR	PB BAL
R603	QRD167J-122	CR	
R604	″ -152	″	
R605	″ -222	″	
R606	″ -101	″	
R607	″ -472	″	
R608	″ -181	″	
R609	″ -682	″	
R610	″ -102	″	
R611	″ -333	″	
R612	″ -103	″	
R613	″ -473	″	
R614	″ -103	″	
R615	″ -391	″	
R616	QVZ3506-331	VR	RF OUT LEV
R617	QRD167J-103	CR	
R618	–	–	
R619	QRD167J-560	CR	
R620	QVZ3506-103	VR	TRAC. M. ADJ
R621	QRD167J-102	CR	
R622	″ -472	″	
R623	″ -332	″	
R624	″ -102	″	
R625	″ -104	″	
R626	QVZ3506-223	VR	DOC LEV
R627	QRD167J-223	CR	
R628	″ -393	″	
R629	″ -223	″	
R630	″ -104	″	
R631	″ -561	″	
R632	″ -103	″	
R633	″ -822	″	
R634	″ -333	″	
R635	″ -333	″	
R636	″ -333	″	
R637	″ -333	″	
R638	″ -821	″	
R639	″ -562	″	
R640	–	–	
R641	QRD167J-102	CR	
R642	–	–	
R643	QRD167J-102	CR	
R644	–	–	
R645	–	–	
R646	–	–	
R647	QRD167J-222	CR	
R648	″ -750	″	
R649	″ -151	″	
R650	QVZ3506-683	VR	CH1 F
R651	″ -683	″	CH1 Q
R652	″ -683	″	CH2 Q
R653	″ -683	″	CH2 F

Symbol No.	Part No.	Part Name	Description
R654	QRD167J-681	CR	
R655	″ -681	″	
R656	″ -681	″	
R657	″ -681	″	
R658	″ -472	″	
R659	″ -223	″	
R660	QVZ3506-472	VR	EE C LEV
R661	QRD167J-563	CR	
R662	″ -223	″	
R663	″ -391	″	
R664	–	–	
R665	QRD165J-102	CR	
R666	″ -391	″	
R667	–	–	
R668	QRD167J-222	CR	
R669	QVZ3506-102	VR	EE C DL
R670	QRD167J-182	CR	
R671	–	–	
R672	–	–	
R673	–	–	
R674	QRD167J-821	CR	
R675	–	–	
R676	–	–	
R677	QRD167J-222	CR	
R678	″ -182	″	
R679	–	–	
R680	QRD167J-102	CR	
R681	–	–	
R682	QRD167J-102	CR	
R683	–	–	
R684	–	–	
R685	–	–	
R686	QRD167J-222	CR	
R687	″ -182	″	
R688	QVZ3506-102	VR	PB C DL
R689	QRD167J-821	CR	
R690	″ -102	″	
R691	″ -332	″	
R692	″ -103	″	
R693	″ -333	″	
R694	″ -103	″	
R695	″ -222	″	
R696	″ -102	″	
R697	″ -561	″	
R698	″ -222	″	
R801	QVZ3506-103	VR	PB B/W F
R802	QRD167J-222	CR	
R803	″ -222	″	
R804	″ -122	″	
R805	″ -101	″	
R806	″ -821	″	
R807	″ -222	″	
R808	″ -391	″	
R809	″ -391	″	
R810	″ -333	″	
R811	QVZ3506-103	VR	RF EQ 1
R812	″ -103	″	RF EQ 2
R813	QRD167J-271	CR	
R814	QRD167J-331	″	
R815	–	–	
R816	QRD167J-274	CR	

Symbol No.	Part No.	Part Name	Description
C 1	QET41CM-106	E Cap	
C 2	″ -106	″	
C 3	QCS11HJ-391	C Cap	
C 4	QCF11HP-223	″	
C 5	QET41CM-476	E Cap	
C 6	″ -106	″	
C 7	QCS11HJ-151	C Cap	
C 8	QCF11HP-223	″	
C 9	QET41CM-476	E Cap	
C10	QFN41HJ-104	MY Cap	
C11	″ -153	″	
C12	QCF11HP-223	C Cap	
C13	QET41CM-476	E Cap	
C14	QET41AM-107	″	
C15	QETA1CM-107	″	
C16	QCF11HP-223	C Cap	
C17	QET41CM-476	E Cap	
C18	QET41AM-107	″	
C19	″ -107	″	
C20	QCS11HJ-331	C Cap	
C21	″ -680	″	
C22	QCF11HP-223	″	
C23	QET41CM-476	E Cap	
C24	QET41AM-107	″	
C25	QCS11HJ-270	C Cap	
C26	–	–	
C27	–	–	
C28	QET41AM-107	E Cap	
C29	QET41CM-336	″	
C30	QCF11HP-223	C Cap	
C31	QET41CM-476	E Cap	
C32	–	–	
C33	–	–	
C34	–	–	
C35	–	–	
C36	–	–	
C37	–	–	
C38	–	–	
C39	–	–	
C40	–	–	
C41	–	–	
C42	–	–	
C43	QFN41HJ-393	MY Cap	
C44	QCF11HP-223	C Cap	
C45	QET41CM-337	E Cap	
C46	QCS11HJ-471	C Cap	
C47	″ -221	″	
C48	QET41AM-107	E Cap	
C49	QEN41AM-337M	NP Cap	
C50	QET41AM-107	E Cap	
C51	QET41HM-335	″	
C52	QFN41HJ-473	MY Cap	
C53	QET41HM-225	E Cap	
C54	QCT05CH-390	C Cap	
C55	″ -180	″	
C56	QCS11HJ-101	″	
C57	″ -820	″	
C58	QCF11HP-223	″	
C59	QET41CM-476	E Cap	
C60	QFN41HJ-103	MY Cap	
C61	QCF11HP-223	C Cap	
C62	QET41CM-476	E Cap	
C63	QFN41HJ-103	MY Cap	
C64	″ -103	″	
C65	QCF11HP-223	C Cap	

Symbol No.	Part No.	Part Name	Description
C66	QET41CM-476	E Cap	
C67	–	–	
C68	QET41CM-226	E Cap	
C69	QET41AM-107	″	
C70	″ -107	″	
C71	QCF11HP-223	C Cap	
C72	–	–	
C73	QET41CM-476	E Cap	
C74	QCS11HJ-121	C Cap	
C75	″ -390	″	
C76	–	–	
C77	QFN41HJ-103	MY Cap	
C78	QCF11HP-223	C Cap	
C79	QET41CM-476	E Cap	
C80	–	–	
C81	QFN41HJ-103	MY Cap	
C82	QCS11HJ-331	C Cap	
C83	QCF11HP-473	″	
C84	QET41CM-476	E Cap	
C85	QET41EM-475	″	
C86	–	–	
C87	QFN41HJ-103	MY Cap	
C88	″ -103	″	
C89	″ -103	″	
C90	QCS11HJ-220	C Cap	
C91	QFN41HJ-103	MY Cap	
C92	″ -103	″	
C93	″ -103	″	
C94	QCS11HJ-680	C Cap	
C95	″ -680	″	
C96	QFN41HJ-103	MY Cap	
C97	–	–	
C98	QCS11HJ-151	C Cap	
C99	–	–	
C100	–	–	
C101	QFN41HJ-223	MY Cap	
C102	QCF11HP-223	C Cap	
C103	QET41CM-476	E Cap	
C104	QCF11HP-223	C Cap	
C105	QET41CM-476	E Cap	
C106	QFN41HJ-223	MY Cap	
C107	″ -223	″	
C108	–	–	
C109	QEK41HM-334	E Cap	
C110	QET41CM-476	″	
C111	QCF11HP-223	C Cap	
C112	QET41CM-476	E Cap	
C113	QET41HM-225	″	
C114	QCS11HJ-151	C Cap	
C115	QFN41HJ-103	MY Cap	
C116	″ -103	″	
C117	QCS11HJ-101	C Cap	
C118	QFN41HJ-103	MY Cap	
C119	QCF11HP-223	C Cap	
C120	QET41CM-476	E Cap	
C121	QCS11HJ-391	C Cap	
C122	″ -121	″	
C123	QCF11HP-223	″	
C124	QET41CM-476	E Cap	
C125	QFN41HJ-102	MY Cap	
C126	QCS11HJ-471	C Cap	
C127	″ -101	″	
C128	QCF11HP-223	″	
C129	QET41CM-476	E Cap	
C130	QFN41HJ-333	MY Cap	

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Symbol No.	Part No.	Part Name	Description
C131	QFN41HJ-333	MY Cap	
C132	—	—	
C133	QCS11HJ-151	C Cap	
C134	—	—	
C135	QFN41HJ-223	MY Cap	
C136	QCF11HP-223	C Cap	
C137	QET41CM-476	E Cap	
C138	QCF11HP-223	C Cap	
C139	QET41CM-476	E Cap	
C140	—	—	
C141	QFN41HJ-223	MY Cap	
C142	″ -223	″	
C143	QCS11HJ-120	C Cap	
C144	″ -390	″	
C145	—	—	
C146	QCS11HJ-3R0	C Cap	
C147	QFN41HJ-223	MY Cap	
C148	—	—	
C149	QCS11HJ-680	C Cap	
C150	″ -220	″	
C151	″ -221	″	
C301	QCF11HP-223	C Cap	
C302	QFN41HJ-222	MY Cap	
C303	″ -222	″	
C304	QCS11HJ-680	C Cap	
C305	—	—	
C306	QET41CM-476	E Cap	
C307	QCF11HP-223	C Cap	
C308	QCS11HJ-220	″	
C309	″ -6R0	″	
C310	QETA1AM-107	E Cap	
C311	—	—	
C312	QCS11HJ-151	C Cap	
C313	″ -151	″	
C314	—	—	
C315	QCS11HJ-150	C Cap	
C316	″ -271	″	
C317	QFN41HJ-102	MY Cap	
C318	″ -152	″	
C319	QET41CM-476	E Cap	
C320	QCF11HP-223	C Cap	
C321	QET41HM-105	E Cap	
C501	QCF11HP-223	C Cap	
C502	QET41CM-476	E Cap	
C503	QCS11HJ-121	C Cap	
C504	QCF11HP-223	″	
C505	QET41CM-476	E Cap	
C506	QFN41HJ-333	MY Cap	
C507	″ -223	″	
C508	QCF11HP-223	C Cap	
C509	QET41CM-476	E Cap	
C510	QFN41HJ-223	MY Cap	
C511	″ -393	″	
C512	″ -393	″	
C513	QET41CM-106	E Cap	
C514	QCF11HP-223	C Cap	
C515	QET41CM-476	E Cap	
C516	QFN41HJ-223	MY Cap	
C517	″ -223	″	
C518	″ -393	″	
C519	″ -393	″	
C520	QET41CM-106	E Cap	
C521	QFN41HJ-223	MY Cap	
C522	QCF11HP-223	C Cap	
C523	QET41CM-476	E Cap	
C524	QCS11HJ-120	C Cap	
C525	QCF11HP-223	″	
C526	QET41CM-476	E Cap	
C527	QCS11HJ-101	C Cap	
C528	QET41CM-106	E Cap	

Symbol No.	Part No.	Part Name	Description
C529	QFN41HJ-223	MY Cap	
C530	QET41CM-106	E Cap	
C531	QCF11HP-223	C Cap	
C532	QET41CM-476	E Cap	
C533	—	—	
C534	QFN41HJ-223	MY Cap	
C535	″ -223	″	
C536	″ -223	″	
C537	″ -183	″	
C538	″ -223	″	
C539	″ -223	″	
C540	″ -223	″	
C541	QCF11HP-223	C Cap	
C542	QET41CM-476	E Cap	
C543	QFN41HJ-102	MY Cap	
C544	″ -223	″	
C545	″ -223	″	
C546	″ -223	″	
C547	″ -223	″	
C548	—	—	
C549	QFN41HJ-223	MY Cap	
C550	″ -223	″	
C551	QCS11HJ-101	C Cap	
C552	QCF11HP-223	″	
C553	QET41CM-476	E Cap	
C554	QFN41HJ-223	MY Cap	
C555	″ -223	″	
C556	″ -223	″	
C557	QET41CM-106	E Cap	
C558	QCS11HJ-150	C Cap	
C559	″ -150	″	
C560	QET41CM-106	E Cap	
C561	QCS11HJ-6R0	C Cap	
C562	″ -220	″	
C563	QCF11HP-223	″	
C564	QET41CM-476	E Cap	
C565	QCS11HJ-390	C Cap	
C566	QFN41HJ-223	MY Cap	
C567	QCF11HP-223	C Cap	
C568	QET41CM-476	E Cap	
C569	QCS11HJ-220	C Cap	
C570	″ -220	″	
C571	″ -820	″	
C572	QFN41HJ-223	MY Cap	
C573	QCF11HP-223	C Cap	
C574	QET41CM-476	E Cap	
C575	QCS11HJ-120	C Cap	
C576	″ -560	″	
C577	″ -560	″	
C578	QFN41HJ-223	MY Cap	
C579	QCF11HP-223	C Cap	
C580	QET41CM-476	E Cap	
C581	QFN41HJ-104	MY Cap	
C582	QET41CM-106	E Cap	
C583	QFN41HJ-104	MY Cap	
C584	QET41HM-105	E Cap	
C585	QEN41CM-106	NP Cap	
C586	QFN41HJ-223	MY Cap	
C587	QCF11HP-223	C Cap	
C588	QET41CM-476	E Cap	
C589	QCS11HJ-470	C Cap	
C590	″ -470	″	
C591	QFN41HJ-102	MY Cap	
C592	QET41CM-476	E Cap	
C593	QFN41HJ-104	MY Cap	

Symbol No.	Part No.	Part Name	Description
C594	QCF11HP-223	C Cap	
C595	QET41CM-476	E Cap	
C596	–	–	
C597	QCF11HP-223	C Cap	
C598	QET41CM-476	E Cap	
C599	–	–	
C600	QFN41HJ-333	MY Cap	
C601	" -333	"	
C602	QCF11HP-223	C Cap	
C603	QET41CM-476	E Cap	
C604	QFN41HJ-223	MY Cap	
C605	" -333	"	
C606	–	–	
C607	QCS11HJ-221	C Cap	
C608	–	–	
C609	–	–	
C610	–	–	
C611	QCF11HP-223	C Cap	
C612	QET41CM-476	E Cap	
C613	QCF11HJ-820	C Cap	
C614	–	–	
C615	QCS11HJ-221	C Cap	
C616	–	–	
C617	QFN41HJ-223	MY Cap	
C618	" -223	"	
C619	QCF11HP-223	C Cap	
C620	QET41CM-476	E Cap	
C621	QFN41HJ-223	MY Cap	
C622	QCF11HP-223	C Cap	
C623	QET41CM-476	E Cap	
C624	QFN41HJ-182	MY Cap	
C625	" -333	"	
C626	" -333	"	
C627	" -333	"	
C628	" -333	"	
C629	–	–	
C630	QCS11HJ-470	C Cap	
C801	QFN41HJ-102	MY Cap	
C802	QET41CM-106	E Cap	
C803	QFN41HJ-333	MY Cap	
C804	QCS11HJ-391	C Cap	
C805	" -680	"	
C806	" -270	"	
C807	" -820	"	
C808	QFN41HJ-223	MY Cap	
C809	" -223	"	
C810	" -223	"	
C811	" -223	"	
C812	–	–	
C813	QCS11HJ-121	C Cap	
C814	QFN41HJ-223	MY Cap	
L 1	PU48530-470J	Peaking Coil	
L 2	" -221K	"	
L 3	" -221K	"	
L 4	" -221K	"	
L 5	" -221K	"	
L 6	" -3R3K	"	
L 7	" -221K	"	
L 8	" -3R3K	"	

Symbol No.	Part No.	Part Name	Description
L 9	PU48530-221K	Peaking Coil	
L10	–	–	
L11	–	–	
L12	–	–	
L13	PU48530-221K	Peaking Coil	
L14	" -101K	"	
L15	" -221K	"	
L16	" -221K	"	
L17	" -221K	"	
L18	" -221K	"	
L19	" -470J	"	
L20	" -221K	"	
L21	" -221K	"	
L22	" -151K	"	
L23	" -221K	"	
L24	" -221K	"	
L25	" -221K	"	
L26	" -221K	"	
L27	" -221K	"	
L28	" -221K	"	
L29	" -221K	"	
L30	" -221K	"	
L31	" -4R7K	"	
L32	–	–	
L33	–	–	
L34	–	–	
L35	–	–	
L36	–	–	
L37	–	–	
L38	–	–	
L39	–	–	
L40	–	–	
L41	PU48530-221K	Peaking Coil	
L42	" -560J	"	
L43	–	–	
L44	PU48530-100J	Peaking Coil	
L45	" -471J	"	
L46	" -471J	"	
L47	" -101J	"	
L48	" -330J	"	
L49	" -220J	"	
L50	" -221K	"	
L51	" -221K	"	
L52	" -221K	"	
L53	" -221K	"	
L54	" -221K	"	
L55	" -221K	"	
L56	" -560J	"	
L57	" -221K	"	
L58	" -221K	"	
L59	" -330J	"	
L60	" -221K	"	
L61	–	–	
L62	PU48530-5R6K	Peaking Coil	
L63	" -221K	"	
L64	" -2R7K	"	
L65	" -5R6K	"	
L66	" -820J	"	
L67	" -820J	"	
L68	" -221K	"	
L69	" -221K	"	
L70	" -560J	"	
L71	" -270J	"	
L72	" -221K	"	
L73	" -221K	"	

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Symbol No.	Part No.	Part Name	Description
L74	PU48530-471K	Peaking Coil	
L75	" -221K	"	
L76	" -221K	"	
L77	" -221K	"	
L78	" -221K	"	
L79	" -221K	"	
L80	" -221K	"	
L81	PU30771-9	Coil	A BIAS TRAP
L82	PU48530-471K	Peaking Coil	
L101	PU30284-14	Choke Coil	
L102	PU48530-330J	Peaking Coil	
L103	" -471K	"	
L104	" -101J	"	
L105	" -100J	"	
L106	" -5R6K	"	
T51	PGZ00078	Transformer	
T52	"	"	
DL 1	–	–	
DL 2	PGZ00200-003	Delay Line	
DL 3	–	–	
DL 4	PGZ00131-003	Delay Line	
DL 5	PGZ00130-001	"	
DL 6	–	–	
DL 7	PGZ00131-001	Delay Line	
DL 8	" -003	"	
EQ 1	PGZ00201-003	Equalizer	
LPF 1	–	–	
LPF 2	PGZ00197-003	Low Pass Filter	
LPF 3	PGZ00199	"	
LPF 4	–	–	
LPF 5	PGZ00197-003	Low Pass Filter	
LPF 6	–	–	
LPF 7	PGZ00198-003	Low Pass Filter	
HPF 1	–	–	
HPF 2	PGZ00205-003	High Pass Filter	
HPF 3	–	–	
HPF 4	PGZ00204-003	High Pass Filter	
BPF 1	–	–	
BPF 2	PGZ00206-003	Band Pass Filter	
TH 1	ERT-D2FHL462S	Thermistor	
TH 2	ERT-D2FHL202S	"	
CT 1	PGZ00133-443	Ceramic Trap	
CT 2	PU46042-6	"	
⚠X 1	PGZ00049	Crystal	
	PGD40350	Shield Plate	
	PGD40232	Shield Case	
	PGD20075	Video In Stay	

Symbol No.	Part No.	Part Name	Description
	GBST3008ZY	Tapping Screw	x 3
	PGD30227	PWB Stay (A)	
	GBST3008ZY	Tapping Screw	x 3
CN 1	PU43351-3Y	Cap. Housing	
CN 2	" -2Y	"	
CN 3	–	–	
CN 4	PU43351-2	Cap. Housing	
CN 5	" -3Y	"	
CN 6	" -4	"	
CN 7	" -3Y	"	
CN 8	–	–	
CN 9	PU43351-2	Cap. Housing	
CN10	" -3	"	
CN11	" -2R	"	
CN12	" -3R	"	
CN13	" -3	"	
CN14	" -2Y	"	
CN15	" -2	"	
CN16	" -2Y	"	
CN17	" -2R	"	
CN18	" -7Y	"	
CN19	" -6	"	
CN20	" -5	"	
CN21	" -3	"	
CN22	" -3R	"	
CN23	" -2R	"	
CN24	" -2Y	"	
CN25	" -5Y	"	
CN26	" -2R	"	
CN27	" -2	"	
CN28	" -2Y	"	
CN29	" -3R	"	
CN30	" -4Y	"	
CN31	" -5	"	
CN32	" -3	"	
	PU54983	Test Pin	TP1–5, 10–22, 51–61, 101–102, 104, 106–108, 151–157

6.2.2 Y/C out board assembly 0 2 . . PGE10026B

Symbol No.	Part No.	Part Name	Description
IC 1	6VT05	Integrated Circuit	
IC 2	M51681L	"	
IC 3	TL592P	"	
IC 4	BA401	"	
IC 5	7VT05	"	
IC 6	M51386L	"	
IC 7	13VT05	"	
IC 8	–	–	
IC 9	12VT19	Integrated Circuit	
IC10	"	"	
IC11	TA7348P	"	
IC12	6VT04	"	
IC13	14VT10	"	
IC14	11VT02	"	
IC15	7VT07	"	
IC16	7VT08	"	
IC17	7VT07	"	
IC18	7VT08	"	
IC19	10VT25	"	
IC20	LM565CN	"	
IC21	TC4528BP	"	
IC22	"	"	
IC23	8VT11	"	
IC51	7VT05	Integrated Circuit	
IC52	–	–	
IC53	AN607P	Integrated Circuit	
IC54	TC4538BP	"	
IC55	TC4001BP	"	
IC56	TL592P	"	
IC57	TA7347P	"	
IC58	AN305	"	
IC59	–	–	
IC60	TA7347P	Integrated Circuit	
IC61	"	"	
IC62	TC4066BP	"	
IC63	–	–	
IC64	SN76670N	Integrated Circuit	
IC65	TC4066BP	"	
IC66	LA7016	"	
IC67	TA7347P	"	
IC68	8VT10	"	
IC69	TC4528BP	"	
IC70	MCM1065	"	
IC71	8VT10	"	
IC72	BA401	"	
IC73	"	"	
IC74	"	"	
IC75	LA7016	"	
IC76	7VT05	"	
IC77	SN76670N	"	
IC78	UPC358C	"	
IC79	"	"	

Symbol No.	Part No.	Part Name	Description
Q 1	2SD636Q,R	Transistor	
Q 2	2SC2647C	"	
Q 3	"	"	
Q 4	"	"	
Q 5	DTA144EF	D. Transistor	
Q 6	2SC2647C	Transistor	
Q 7	"	"	
Q 8	"	"	
Q 9	2SB641Q,R	"	
Q10	2SC2647C	"	
Q11	"	"	
Q12	DTC144EF	D. Transistor	
Q13	2SC2647C	Transistor	
Q14	"	"	
Q15	"	"	
Q16	2SB641Q,R	"	
Q17	2SC2647C	"	
Q18	2SB641Q,R	"	
Q19	2SC2647C	"	
Q20	"	"	
Q21	"	"	
Q22	"	"	
Q23	"	"	
Q24	DTA144EF	D. Transistor	
Q25	2SC2647C	Transistor	
Q26	"	"	
Q27	DTA144EF	D. Transistor	
Q28	2SB641Q,R	Transistor	
Q29	2SC2647C	"	
Q30	"	"	
Q31	–	–	
Q32	–	–	
Q33	2SC2647C	Transistor	
Q34	"	"	
Q35	DTA144EF	D. Transistor	
Q36	–	–	
Q37	–	–	
Q38	–	–	
Q39	–	–	
Q40	–	–	
Q41	2SC2647C	Transistor	
Q42	2SB641Q,R	"	
Q43	2SC2647C	"	
Q44	"	"	
Q45	–	–	
Q46	–	–	
Q47	–	–	
Q48	–	–	
Q49	–	–	
Q50	–	–	
Q51	DTA144EF	D. Transistor	
Q52	2SC2647C	Transistor	
Q53	–	–	
Q54	2SC2647C	Transistor	
Q55	2SD636Q,R	"	
Q56	2SC2647C	"	
Q57	"	"	
Q58	"	"	
Q59	"	"	
Q60	"	"	
Q61	"	"	
Q62	"	"	
Q63	"	"	
Q64	"	"	
Q65	"	"	

Y/C out

Symbol No.	Part No.	Part Name	Description
Q66	2SC2647C	Transistor	
Q67	"	"	
Q68	"	"	
Q69	DTC144EF	D. Transistor	
Q70	2SC2647C	Transistor	
Q71	–	–	
Q72	2SK30A-O,Y	F.E.T.	
Q73	"	"	
Q74	2SC2647C	Transistor	
Q75	2SB641Q,R	"	
Q76	3SK72Q	F.E.T.	
Q77	2SC2647C	Transistor	
Q78	2SK30A-O	F.E.T.	
Q79	"	"	
Q80	2SC2647C	Transistor	
Q81	"	"	
Q82	2SK30A-O,Y	F.E.T.	
Q83	2SC2647C	Transistor	
Q84	"	"	
Q85	DTA144EF	D. Transistor	
Q86	"	"	
⚠ Q87	2SC2647C	Transistor	
Q88	2SB641Q,R	"	
Q89	2SC2647C	"	
Q201	2SC2647C	Transistor	
Q202	DTA144EF	D. Transistor	
Q203	2SC2647C	Transistor	
Q204	"	"	
Q205	DTC144EF	D. Transistor	
Q206	DTC114EF	"	
Q251	2SC2647C	Transistor	
D 1	1SS133	Diode	
D 2	"	"	
D 3	"	"	
D 4	1SS99	"	
D 5	"	"	
D 6	"	"	
D 7	"	"	
D 8	"	"	
D 9	1SS133	"	
D10	MA27Q	"	
D11	1SS133	"	
D12	"	"	
D13	RD6.8EB	Zener Diode	
D14	RD7.5EB2	"	
D15	"	"	
D16	"	"	
D17	"	"	
D52	1SS133	Diode	
D53	"	"	
D54	–	–	
D55	1SS133	Diode	
D56	–	–	
D57	–	–	
D58	RD5.1EB	Zener Diode	
D59	FC52M-4.5.6	Vari. Cap.	
D60	RD6.8EB	Zener Diode	
D61	–	–	
D62	1SS135	Diode	
D63	"	"	
D64	–	–	
D65	1SS133	Diode	
D66	–	–	
D67	–	–	
D68	1SS135	Diode	
D69	"	"	
D70	1SS133	"	
D71	"	"	
D72	RD8.2EB	Zener Diode	
D73	1SS133	Diode	
D74	FC54M-4.5.6	Vari. Cap.	
D75	1SS99	Diode	
D76	"	"	
D201	1SS133	Diode	
D202	"	"	
D203	1SS99	"	
D204	"	"	
D205	MA27Q	"	
R 1	QVZ3506-103	VR	DC ADJ
R 2	" -222	"	OSC LEV
R 3	QRD167J-332	CR	
R 4	" -331	"	
R 5	" -102	"	
R 6	" -161	"	
R 7	" -161		
R 8	–	–	
R 9	QRD167J-102	CR	
R10	" -122	"	
R11	" -122	"	
R12	QVZ3506-102	VR	DL ADJ
R13	QRD167J-102	CR	
R14	" -333	"	
R15	" -333	"	
R16	" -333	"	
R17	" -333	"	
R18	QVZ3506-472	VR	NOISE BAL
R19	QRD167J-181	CR	
R20	" -561	"	
R21	" -102	"	
R22	" -102	"	
R23	QVZ3506-102	VR	NOISE LEV
R24	QRD167J-103	CR	
R25	" -103	"	
R26	" -104	"	
R27	" -333	"	
R28	" -333	"	
R29	" -472	"	
R30	" -102	"	
R31	" -332	"	
R32	QVZ3506-222	VR	HF NOISE LEV
R33	QRD167J-333	CR	
R34	" -333	"	
R35	" -472	"	
R36	" -222	"	
R37	–	–	
R38	QRD167J-563	CR	
R39	" -563	"	
R40	" -104	"	
R41	" -222	"	
R42	" -223	"	
R43	" -563	"	
R44	QVZ3506-101	VR	DG COMPE
R45	QRD167J-102	CR	

Symbol No.	Part No.	Part Name	Description
R46	QRD167J-102	CR	
R47	″ -103	″	
R48	″ -181	″	
R49	″ -272	″	
R50	″ -182	″	
R51	″ -681	″	
R52	″ -391	″	
R53	″ -391	″	
R54	″ -391	″	
R55	″ -182	″	
R56	QVZ3506-471	VR	SIN ADJ
R57	QRD167J-563	CR	
R58	″ -103	″	
R59	″ -222	″	
R60	″ -561	″	
R61	″ -272	″	
R62	″ -101	″	
R63	—	—	
R64	QVZ3506-222	VR	VIDEO EQ 1
R65	″ -222	″	VIDEO EQ 2
R66	″ -471	″	B/W LEV
R67	QRD167J-181	CR	
R68	″ -563	″	
R69	″ -103	″	
R70	″ -222	″	
R71	″ -561	″	
R72	″ -272	″	
R73	″ -101	″	
R74	″ -182	″	
R75	″ -472	″	
R76	″ -103	″	
R77	″ -103	″	
R78	″ -472	″	
R79	″ -103	″	
R80	″ -472	″	
R81	″ -472	″	
R82	″ -123	″	
R83	″ -184	″	
R84	QVZ3506-102	VR	WHITE LIN
R85	″ -682	″	SYNC LIN
R86	QRD167J-392	CR	
R87	″ -181	″	
R88	QVZ3506-102	VR	ADD P LEV
R89	QRD167J-681	CR	
R90	″ -181	″	
R91	″ -182	″	
R92	″ -332	″	
R93	QVZ3506-223	VR	DUB C OUT DC
R94	QRD167J-222	CR	
R95	″ -122	″	
R96	QVZ3506-332	VR	DUB Y LEV
R97	QRD167J-471	CR	
R98	″ -750	″	
R99	″ -391	″	
R100	″ -103	″	
R101	″ -223	″	
R102	″ -222	″	
R103	″ -822	″	
R104	″ -392	″	
R105	″ -471	″	
R106	QVZ3506-332	VR	OUT LEV
R107	QRD167J-122	CR	
R108	QVZ3506-223	VR	VIDEO OUT DC
R109	QRD167J-181	CR	
R110	″ -750	″	

Symbol No.	Part No.	Part Name	Description
R111	—	—	
R112	QRD167J-750	CR	
R113	″ -750	″	
R114	″ -750	″	
R115	″ -102	″	
R116	″ -333	″	
R117	″ -333	″	
R118	″ -562	″	
R119	″ -471	″	
R120	QVZ3506-223	VR	P GATE WID
R121	″ -223	″	3/4H ADJ
R122	″ -222	″	SYNC THR
R123	QRD167J-101	CR	
R124	″ -563	″	
R125	″ -393	″	
R126	″ -393	″	
R127	″ -273	″	
R128	″ -273	″	
R129	″ -822	″	
R130	″ -391	″	
R131	QVZ3506-472	VR	FREQ ADJ
R132	—	—	
R133	—	—	
R134	QVZ3506-333	VR	GATE P WID
R135	″ -223	″	CLAMP P WID
R136	QRD167J-181	CR	
R137	″ -103	″	
R138	″ -333	″	
R139	″ -103	″	
R140	QVZ3506-223	VR	ADD P POS
R141	″ -104	″	ADD P WID
R142	QRD167J-103	CR	
R143	″ -104	″	
R144	″ -333	″	
R145	″ -103	″	
R146	″ -822	″	
R301	QRD167J-473	CR	
R302	″ -183	″	
R303	″ -102	″	
R304	QVZ3506-152	VR	ADM Y LEV
R305	QRD167J-561	CR	
R306	″ -470	″	
R307	″ -181	″	
R308	″ -222	″	
R309	″ -182	″	
R310	″ -222	″	
R311	″ -181	″	
R312	″ -222	″	
R313	″ -182	″	
R314	QVZ3506-152	VR	PHASE EQ 2
R315	QRD167J-0R0	CR	
R316	″ -393	″	
R317	″ -273	″	
R318	″ -152	″	
R319	″ -152	″	
R320	QVZ3506-332	VR	PHASE EQ 1
R321	QRD167J-393	CR	
R322	″ -273	″	
R323	″ -390	″	
R324	″ -822	″	
R325	″ -103	″	

Y/C out

Symbol No.	Part No.	Part Name	Description
R326	QRD167J-103	CR	
R327	″ -222	″	
R328	″ -472	″	
R329	QVZ3506-223	VR	GATE P POS
R330	QRD167J-103	CR	
R331	″ -101	″	
R332	″ -223	″	
R333	″ -222	″	
R334	″ -472	″	
R335	QVZ3506-103	VR	Y FREQ
R336	QRD167J-182	CR	
R337	QVZ3507-474	VR	STILL SYNC
R338	QRD167J-154	CR	
R339	″ -102	″	
R340	″ -472	″	
R501	QRD167J-750	CR	
R502	″ -103	″	
R503	″ -333	″	
R504	–	–	
R505	QRD167J-821	CR	
R506	–	–	
R507	–	–	
R508	–	–	
R509	–	–	
R510	–	–	
R511	QVZ3506-471	VR	DUB DELAY
R512	QRD167J-222	CR	
R513	″ -222	″	
R514	″ -102	″	
R515	–	–	
R516	QRD167J-102	CR	
R517	″ -222	″	
R518	QVZ3506-222	VR	DUB C LEV
R519	QRD167J-473	CR	
R520	″ -393	″	
R521	″ -333	″	
R522	″ -103	″	
R523	″ -681	″	
R524	–	–	
R525	QRD167J-683	CR	
R526	″ -102	″	
R527	″ -472	″	
R528	″ -182	″	
R529	″ -183	″	
R530	″ -473	″	
R531	″ -123	″	
R532	″ -683	″	
R533	″ -682	″	
R534	″ -683	″	
R535	″ -682	″	
R536	″ -333	″	
R537	″ -333	″	
R538	″ -333	″	
R539	″ -333	″	
R540	QVZ3506-103	VR	C LEV
R541	QRD167J-103	CR	
R542	″ -181	″	
R543	″ -563	″	
R544	QVZ3506-104	VR	PIB CANDC
R545	QRD167J-104	CR	
R546	″ -332	″	
R547	″ -103	″	
R548	″ -104	″	
R549	″ -153	″	
R550	″ -472	″	
R551	″ -561	″	
R552	–	–	
R553	QRD167J-103	CR	
R554	QVZ3506-332	VR	PB COL LEV
R555	QRD167J-392	CR	

Symbol No.	Part No.	Part Name	Description
R556	QRD167J-223	CR	
R557	″ -333	″	
R558	″ -273	″	
R559	″ -273	″	
R560	″ -332	″	
R561	″ -332	″	
R562	″ -822	″	
R563	QVZ3506-103	VR	CONV BAL
R564	QRD167J-104	CR	
R565	″ -271	″	
R566	–	–	
R567	QRD167J-102	CR	
R568	–	–	
R569	QRD167J-102	CR	
R570	–	–	
R571	–	–	
R572	–	–	
R573	QRD167J-333	CR	
R574	″ -333	″	
R575	″ -330	″	
R576	″ -181	″	
R577	″ -181	″	
R578	″ -181	″	
R579	″ -102	″	
R580	″ -222	″	
R581	″ -103	″	
R582	″ -181	″	
R583	″ -104	″	
R584	QVZ3506-223	VR	SW DC BAL 1
R585	QRD167J-332	CR	
R586	″ -103	″	
R587	″ -181	″	
R588	″ -104	″	
R589	QVZ3506-223	VR	SW DC BAL 2
R590	QRD167J-332	CR	
R591	″ -473	″	
R592	″ -473	″	
R593	″ -473	″	
R594	″ -102	″	
R595	–	–	
R596	–	–	
R597	–	–	
R598	–	–	
R599	–	–	
R600	–	–	
R601	–	–	
R602	–	–	
R603	–	–	
R604	–	–	
R605	–	–	
R606	–	–	
R607	QRD167J-102	CR	
R608	″ -681	″	
R609	–	–	
R610	–	–	
R611	–	–	
R612	–	–	
R613	–	–	
R614	QRD167J-332	CR	
R615	″ -473	″	
R616	″ -332	″	
R617	″ -822	″	
R618	″ -824	″	
R619	″ -822	″	
R620	″ -562	″	

Symbol No.	Part No.	Part Name	Description
R621	QRD167J-103	CR	
R622	″ -223	″	
R623	″ -123	″	
R624	″ -822	″	
R625	″ -124	″	
R626	″ -822	″	
R627	″ -333	″	
R628	″ -123	″	
R629	QVZ3506-103	VR	COLOR LOCK
R630	QRD167J-103	CR	
R631	″ -564	″	
R632	″ -564	″	
R633	″ -153	″	
R634	″ -682	″	
R635	″ -822	″	
R636	″ -271	″	
R637	QVZ3506-222	VR	VCO LEV
R638	QRD167J-682	CR	
R639	″ -223	″	
R640	″ -182	″	
R641	″ -471	″	
R642	″ -181	″	
R643	–	–	
R644	QRD167J-223	CR	
R645	″ -332	″	
R646	″ -103	″	
R647	″ -332	″	
R648	″ -273	″	
R649	″ -471	″	
R650	″ -393	″	
R651	″ -393	″	
R652	″ -223	″	
R653	″ -103	″	
R654	″ -392	″	
R655	″ -473	″	
R656	″ -563	″	
R657	″ -473	″	
R658	″ -562	″	
R659	–	–	
R660	QRD167J-473	CR	
R661	″ -472	″	
R662	″ -223	″	
R663	″ -103	″	
R664	″ -103	″	
R665	″ -223	″	
R666	″ -472	″	
R667	″ -123	″	
R668	QVZ3506-223	VR	MASK POS
R669	″ -223	″	MASK WID
R670	QRD167J-103	CR	
R671	QVZ3506-683	VR	CH 2 P WID
R672	″ -683	″	CH 1 P WID
R673	″ -223	″	CARIB P WID
R674	″ -223	″	P CAN WID
R675	QRD167J-223	CR	
R676	QVZ3506-223	VR	P GATE POS
R677	QRD167J-332	CR	
R678	″ -273	″	
R679	″ -821	″	
R680	″ -393	″	
R681	″ -393	″	
R682	″ -181	″	
R683	″ -222	″	
R684	″ -332	″	
R685	″ -102	″	
R686	QRD167J-822	CR	
R687	″ -822	″	
R688	″ -561	″	
R689	″ -271	″	
R690	″ -102	″	
R691	″ -102	″	
R692	″ -182	″	
R693	″ -102	″	
R694	″ -392	″	
R695	″ -223	″	
R696	″ -103	″	
R697	QVZ3506-223	VR	OSC FREQ
R698	QRD167J-104	CR	
R699	″ -103	″	
R700	″ -153	″	
R701	″ -471	″	
R702	″ -181	″	
R703	QVZ3506-222	VR	OSC LEV
R704	QRD167J-682	CR	
R705	″ -102	″	
R706	–	–	
R707	QRD167J-333	CR	
R708	″ -562	″	
R709	″ -101	″	
R710	QVZ3506-682	VR	SC LEV
R711	QRD167J-332	CR	
R712	″ -332	″	
R713	″ -332	″	
R714	″ -224	″	
R715	″ -224	″	
R716	″ -124	″	
R717	″ -103	″	
R718	QVZ3506-473	VR	H.DISCRI GAIN
R719	QRD167J-274	CR	
R720	″ -224	″	
R721	″ -274	″	
R722	″ -224	″	
R723	″ -563	″	
R724	″ -103	″	
R725	–	–	
R726	QRD167J-332	CR	
R727	–	–	
R728	–	–	
R729	–	–	
R730	QRD167J-562	CR	
R731	″ -682	″	
R732	″ -122	″	
R733	″ -682	″	
R734	–	–	
R735	QRD167J-182	CR	
R801	QRD167J-103	CR	
R802	″ -181	″	
R803	″ -681	″	
R804	″ -181	″	
R805	″ -332	″	
R806	″ -222	″	
R807	–	–	
R808	QRD167J-102	CR	

Y/C out

Symbol No.	Part No.	Part Name	Description
C 1	QET41AM-107	E Cap	
C 2	QCF11HP-223	C Cap	
C 3	QET41CM-476	E Cap	
C 4	QFN41HJ-223	MY Cap	
C 5	QCF11HP-223	C Cap	
C 6	QET41CM-476	E Cap	
C 7	QFN41HJ-103	MY Cap	
C 8	QCF11HP-223	C Cap	
C 9	QET41CM-476	E Cap	
C10	QFN41HJ-223	MY Cap	
C11	QCS11HJ-390	C Cap	
C12	" -680	"	
C13	" -390	"	
C14	QFN41HJ-223	MY Cap	
C15	QCS11HJ-121	C Cap	
C16	QET41AM-107	E Cap	
C17	QET41CM-106	"	
C18	" -106	"	
C19	QFN41HJ-223	MY Cap	
C20	QCF11HP-223	C Cap	
C21	QET41CM-476	E Cap	
C22	QCF11HP-223	C Cap	
C23	QET41CM-476	E Cap	
C24	QFN41HJ-223	MY Cap	
C25	QET41CM-106	E Cap	
C26	QFN41HJ-223	MY Cap	
C27	" -223	"	
C28	" -223	"	
C29	QCF11HP-223	C Cap	
C30	QET41CM-476	E Cap	
C31	" -106	"	
C32	QFN41HJ-103	MY Cap	
C33	" -102	"	
C34	" -332	"	
C35	QET41CM-106	E Cap	
C36	QET41AM-476	"	
C37	" -476	"	
C38	QCF11HP-223	C Cap	
C39	QET41CM-476	E Cap	
C40	QET41AM-227	"	
C41	QET41CM-476	"	
C42	QCF11HP-223	C Cap	
C43	QET41CM-476	E Cap	
C44	" -106	"	
C45	–	–	
C46	–	–	
C47	QCF11HP-223	C Cap	
C48	QET41CM-476	E Cap	
C49	QCF11HP-223	C Cap	
C50	QET41CM-476	E Cap	
C51	–	–	
C52	QET41AM-107	E Cap	
C53	" -107	"	
C54	QCF11HP-223	C Cap	
C55	QET41CM-476	E Cap	
C56	QET41AM-107	"	
C57	QCS11HJ-471	C Cap	
C58	QCF11HP-223	"	
C59	QET41CM-476	E Cap	
C60	" -476	"	
C61	QCF11HP-223	C Cap	
C62	QET41CM-476	E Cap	
C63	QFN41HJ-223	MY Cap	
C64	" -153	"	
C65	QET41CM-476	E Cap	

Symbol No.	Part No.	Part Name	Description
C66	QEN41CM-106	NP Cap	
C67	QCF11HP-223	C Cap	
C68	QET41CM-476	E Cap	
C69	" -106	"	
C70	QET41HM-475	"	
C71	QCS11HJ-270	C Cap	
C72	QCF11HP-223	"	
C73	QET41CM-476	E Cap	
C74	" -476	"	
C75	QFN41HJ-223	MY Cap	
C76	QCF11HP-223	C Cap	
C77	QET41CM-476	E Cap	
C78	" -476	"	
C79	" -476	"	
C80	QCS11HJ-391	C Cap	
C81	QCF11HP-223	"	
C82	QET41CM-476	E Cap	
C83	" -106	"	
C84	QFN41HJ-153	MY Cap	
C85	" -102	"	
C86	" -104	"	
C87	QFP42AF-182	PP Cap	
C88	QET41HM-105	E Cap	
C89	QCF11HP-223	C Cap	
C90	QET41CM-476	E Cap	
C91	QCF11HP-223	C Cap	
C92	QET41CM-476	E Cap	
C93	QCT05CH-101	C Cap	
C94	QCS11HJ-101	"	
C95	QFN41HJ-103	MY Cap	
C96	QCF11HP-223	C Cap	
C97	QET41CM-476	E Cap	
C98	QFN41HJ-473	MY Cap	
C99	" -183	"	
C100	" -333	"	
C101	QET41CM-106	E Cap	
C102	QCS11HJ-330	C Cap	
C103	" -390	"	
C104	QETA1CM-227	E Cap	
C301	QFN41HJ-223	MY Cap	
C302	QCS11HJ-390	C Cap	
C303	" -680	"	
C304	QFN41HJ-102	MY Cap	
C305	QET41CM-107	E Cap	
C306	QCS11HJ-390	C Cap	
C307	QET41CM-107	E Cap	
C308	QFN41HJ-274	MY Cap	
C309	QET41CM-476	E Cap	
C310	QCS11HJ-390	C Cap	
C311	" -101	"	
C312	QET41HM-474	E Cap	
C313	QCS11HJ-560	C Cap	
C314	QFN41HJ-102	MY Cap	
C315	QCS11HJ-821	C Cap	
C316	QFN41HJ-223	MY Cap	
C317	QET41CM-106	E Cap	
C318	–	–	
C319	QCF11HP-223	C Cap	
C320	QCS11HJ-150	"	
C321	" -221	"	
C322	" -181	"	
C323	QCF11HP-223	"	
C501	QCF11HP-223	C Cap	
C502	QET41CM-476	E Cap	
C503	QFN41HJ-103	MY Cap	
C504	–	–	
C505	QFN41HJ-103	MY Cap	

Symbol No.	Part No.	Part Name	Description
C506	–	–	
C507	QCS11HJ-151	C Cap	
C508	QFN41HJ-104	MY Cap	
C509	″ -103	″	
C510	″ -102	″	
C511	″ -102	″	
C512	″ -222	″	
C513	″ -102	″	
C514	″ -102	″	
C515	QCF11HP-223	C Cap	
C516	QET41CM-476	E Cap	
C517	QFN41HJ-102	MY Cap	
C518	QCF11HP-223	C Cap	
C519	QET41CM-476	E Cap	
C520	QFN41HJ-102	MY Cap	
C521	″ -563	″	
C522	QCS11HJ-151	C Cap	
C523	QFN41HJ-472	MY Cap	
C524	QET41HM-225	E Cap	
C525	QCS11HJ-101	C Cap	
C526	QCF11HP-223	″	
C527	QET41CM-476	E Cap	
C528	″ -106	″	
C529	QFN41HJ-333	MY Cap	
C530	″ -104	″	
C531	–	–	
C532	QCF11HP-223	C Cap	
C533	QET41CM-476	E Cap	
C534	QFN41HJ-333	MY Cap	
C535	QCF11HP-223	C Cap	
C536	QET41CM-476	E Cap	
C537	QFN41HJ-103	MY Cap	
C538	QEK41HM-224	E Cap	
C539	QET41CM-106	″	
C540	QCS11HJ-220	C Cap	
C541	″ -220	″	
C542	QFN41HJ-103	MY Cap	
C543	–	–	
C544	QFN41HJ-103	MY Cap	
C545	QCS11HJ-220	C Cap	
C546	QFN41HJ-223	MY Cap	
C547	–	–	
C548	QFN41HJ-103	MY Cap	
C549	QCF11HP-223	C Cap	
C550	QET41CM-476	E Cap	
C551	–	–	
C552	–	–	
C553	QFN41HJ-103	MY Cap	
C554	″ -103	″	
C555	″ -103	″	
C556	QCF11HP-223	C Cap	
C557	QET41CM-476	E Cap	
C558	QFN41HJ-103	MY Cap	
C559	″ -103	″	
C560	QCF11HP-223	C Cap	
C561	QET41CM-476	E Cap	
C562	″ -226	″	
C563	″ -226	″	
C564	QCF11HP-223	C Cap	
C565	QET41CM-476	E Cap	
C566	–	–	
C567	–	–	
C568	QCF11HP-223	C Cap	
C569	QET41CM-476	E Cap	
C570	–	–	

Symbol No.	Part No.	Part Name	Description
C571	QCS11HJ-5R0	C Cap	
C572	″ -220	″	
C573	–	–	
C574	–	–	
C575	QFN41HJ-223	MY Cap	
C576	–	–	
C577	QCT05CH-100	C Cap	
C578	QFN41HJ-223	MY Cap	
C579	QCT05CH-100	C Cap	
C580	QCF11HP-223	″	
C581	QET41CM-476	E Cap	
C582	QCS11HJ-270	C Cap	
C583	″ -181	″	
C584	QET41HM-105	E Cap	
C585	QCS11HJ-470	C Cap	
C586	QET41CM-106	E Cap	
C587	QFN41HJ-152	MY Cap	
C588	QET41CM-106	E Cap	
C589	″ -106	″	
C590	QCF11HP-223	C Cap	
C591	QET41CM-476	E Cap	
C592	QCF11HP-223	C Cap	
C593	QET41CM-476	E Cap	
C594	QFN41HJ-223	MY Cap	
C595	QCT05CH-560	C Cap	
C596	″ -560	″	
C597	QFN41HJ-102	MY Cap	
C598	″ -683	″	
C599	″ -103	″	
C600	″ -103	″	
C601	″ -103	″	
C602	QCF11HP-223	C Cap	
C603	QET41CM-476	E Cap	
C604	QFN41HJ-103	MY Cap	
C605	″ -103	″	
C606	QET41CM-106	E Cap	
C607	QCF11HP-223	C Cap	
C608	QET41CM-476	E Cap	
C609	QFN41HJ-103	MY Cap	
C610	QCS11HJ-101	C Cap	
C611	QCF11HP-223	″	
C612	QET41CM-476	E Cap	
C613	QFN41HJ-102	MY Cap	
C614	″ -102	″	
C615	QCS11HJ-121	C Cap	
C616	″ -101	″	
C617	QFN41HJ-222	MY Cap	
C618	″ -222	″	
C619	″ -224	″	
C620	–	–	
C621	–	–	
C622	QCF11HP-223	C Cap	
C623	QET41CM-476	E Cap	
C624	″ -106	″	
C625	QCF11HP-223	C Cap	
C626	QET41CM-476	E Cap	
C627	QFN41HJ-102	MY Cap	
C628	″ -332	″	
C629	″ -472	″	
C630	″ -333	″	
C631	″ -333	″	
C632	″ -223	″	
C633	QCS11HJ-331	C Cap	
C634	QCF11HP-223	″	
C635	QET41CM-476	E Cap	

Y/C out

Symbol No.	Part No.	Part Name	Description
C636	QCS11HJ-221	C Cap	
C637	QCF11HP-223	〃	
C638	QET41CM-476	E Cap	
C639	QFN41HJ-102	MY Cap	
C640	〃 -102	〃	
C641	QCS11HJ-121	C Cap	
C642	〃 -101	〃	
C643	QFN41HJ-222	MY Cap	
C644	〃 -222	〃	
C645	QCS11HJ-151	C Cap	
C646	QFN41HJ-222	MY Cap	
C647	〃 -333	〃	
C648	〃 -333	〃	
C649	〃 -333	〃	
C650	〃 -333	〃	
C651	QCF11HP-223	C Cap	
C652	QET41CM-476	E Cap	
C653	QFN41HJ-333	MY Cap	
C654	QCS11HJ-101	C Cap	
C655	QFN41HJ-333	MY Cap	
C656	〃 -103	〃	
C657	〃 -103	〃	
C658	QCF11HP-223	C Cap	
C659	QET41CM-476	E Cap	
C660	QFN41HJ-102	MY Cap	
C661	QCS11HJ-121	C Cap	
C662	〃 -151	〃	
C663	QCF11HP-223	〃	
C664	QET41CM-476	E Cap	
C665	QFN41HJ-103	MY Cap	
C666	〃 -103	〃	
C667	QCF11HP-223	C Cap	
C668	QET41CM-476	E Cap	
C669	QFN41HJ-103	MY Cap	
C670	–	–	
C671	QCF11HP-223	C Cap	
C672	QET41CM-476	E Cap	
C673	QFN41HJ-103	MY Cap	
C674	QET41CM-106	E Cap	
C675	QFN41HJ-334	MY Cap	
C676	〃 -223	〃	
C677	〃 -222	〃	
C678	〃 -154	〃	
C679	〃 -222	〃	
C680	QFP42AJ-562	PP Cap	
C681	QEN41CM-106	NP Cap	
C682	QCF11HP-223	C Cap	
C683	QET41CM-476	E Cap	
C684	〃 -106	〃	
C685	QCS11HJ-3R0	C Cap	
C686	–	–	
C687	–	–	
C688	–	–	
C689	–	–	
C690	–	–	
C691	QFP42AJ-562	PP Cap	
C692	QFN41HJ-223	MY Cap	
C693	QET41HM-226	E Cap	
C694	–	–	
C695	–	–	
C696	–	–	
C697	QCS11HJ-270	C Cap	
C698	QFN41HJ-272	MY Cap	

Symbol No.	Part No.	Part Name	Description
C801	QFN41HJ-103	MY Cap	
C802	QCS11HJ-121	C Cap	
C803	〃 -180	〃	
C804	〃 -151	〃	
C805	QFN41HJ-152	MY Cap	
⚠PTH 1	PU52108-680V	Posistor	
⚠PTH 2	〃 -680V	〃	
⚠PTH 3	〃 -680V	〃	
⚠PTH 4	〃 -680V	〃	
L 1	PU48530-221K	Peaking Coil	
L 2	〃 -221K	〃	
L 3	〃 -221K	〃	
L 4	〃 -470J	〃	
L 5	〃 -470J	〃	
L 6	〃 -2R7K	〃	
L 7	〃 -2R7K	〃	
L 8	〃 -221K	〃	
L 9	〃 -221K	〃	
L10	〃 -271J	〃	
L11	〃 -221K	〃	
L12	〃 -270J	〃	
L13	〃 -221K	〃	
L14	〃 -221K	〃	
L15	–	–	
L16	–	–	
L17	PU48530-221K	Peaking Coil	
L18	〃 -560J	〃	
L19	〃 -221K	〃	
L20	〃 -270J	〃	
L21	〃 -221K	〃	
L22	〃 -221K	〃	
L23	〃 -221K	〃	
L24	〃 -221K	〃	
L25	〃 -221K	〃	
L26	〃 -221K	〃	
L27	–	–	
L28	–	–	
L29	–	–	
L30	–	–	
L31	–	–	
L32	PU48530-221K	Peaking Coil	
L33	〃 -470J	〃	
L34	〃 -221K	〃	
L35	〃 -221K	〃	
L36	〃 -221K	〃	
L37	–	–	
L38	–	–	
L39	–	–	
L40	–	–	
L41	PU48530-560J	Peaking Coil	
L42	〃 -100J	〃	
L43	〃 -560J	〃	
L44	〃 -180J	〃	
L45	〃 -390J	〃	
L46	〃 -471J	〃	
L47	〃 -101J	〃	
L48	〃 -560J	〃	
L49	〃 -471J	〃	
L50	–	–	

Symbol No.	Part No.	Part Name	Description
L51	PU48530-221K	Peaking Coil	
L52	" -221K	"	
L53	" -471K	"	
L54	" -471K	"	
L55	" -221K	"	
L56	" -221K	"	
L57	" -180J	"	
L58	" -221K	"	
L59	" -221K	"	
L60	" -471K	"	
L61	" -221K	"	
L62	–	–	
L63	PU48530-221K	Peaking Coil	
L64	" -221K	"	
L65	" -221K	"	
L66	" -221K	"	
L67	" -120J	"	
L68	" -221K	"	
L69	" -221K	"	
L70	PU30771-15	Coil	VCO TUNE
L71	PU48530-221K	Peaking Coil	
L72	" -221K	"	
L73	" -471K	"	
L74	" -471K	"	
L75	" -221K	"	
L76	" -221K	"	
L77	" -120J	"	
L78	" -221K	"	
L79	" -221K	"	
L80	" -221K	"	
L81	" -221K	"	
L82	" -120J	"	
L83	" -221K	"	
L84	" -180J	"	
L85	" -221K	"	
L86	" -221K	"	
L87	" -221K	"	
L88	" -471J	"	
L89	" -221K	"	
L90	" -331K	"	
L91	PU30771-3	Coil	H. DISCRI OFFSET
L92	PU48530-221K	Peaking Coil	
L141	PU48530-330J	Peaking Coil	
L142	" -101J	"	
⚠X 1	PU31449-2	Crystal	
⚠XB 1	PGZ00237	Crystal Block	
T 1	PU41213	D. Trans.	
T 2	"	"	
LC 1	PGZ00054	LC Block	DISCRI TUNE
LC 2	"	"	DISCRI OFFSET

Symbol No.	Part No.	Part Name	Description
DL 1	PGZ00061	Delay Line	
DL 2	PGZ00131-001	"	
DL 3	–	–	
DL4	PGZ00208-003	Delay Line	
LPF 1	–	–	
LPF 2	PGZ00202-003	Low Pass Filter	
BPF 1	–	–	
BPF 2	PGZ00207-003	Band Pass Filter	
CT 1	PGZ00051	Ceramic Trap	
TH 1	ERT-D2FHL103S	Thermistor	
SW 1	PU49847	Slide Switch	
SW 2	"	"	
SW 3	"	"	
CN 1	PU43351-3	Cap. Housing	
CN 2	" -2Y	"	
CN 3	" -2R	"	
CN 4	" -4R	"	
CN 5	" -3	"	
CN 6	" -2	"	
CN 7	" -4	"	
CN 8	" -2R	"	
CN 9	–	–	
CN10	PU43351-2Y	Cap. Housing	
CN11	" -2	"	
CN12	" -3	"	
CN13	" -2	"	
CN14	" -5Y	"	
CN15	" -3Y	"	
CN16	" -5	"	
CN17	" -3R	"	
CN18	–	–	
CN19	PU43351-2	Cap. Housing	
CN20	" -2	"	
CN21	" -2Y	"	
CN22	" -2	"	
CN51	PU43351-4	Cap. Housing	
CN52	" -2	"	
CN53	" -2	"	
CN54	" -4	"	

Y/C out

Symbol No.	Part No.	Part Name	Description
	PGD40233	Shield Case (A)	
	PGD40234	" (B)	
	PGD20076	Video Out Stay	
	GBST3008ZY	Tapping Screw	x 3
	PGD30227	PWB Stay (A)	
	GBST3008ZY	Tapping Screw	x 3
	PU54983	Test Pin	TP1–16,51–74, 101–103, 105–109, 151–158

6.2.3 Audio board assembly $\boxed{0}\boxed{3}$ PGE10040C

Symbol No.	Part No.	Part Name	Description
IC 1	M5220P	Integrated Circuit	
IC 2	"	"	
IC 3	"	"	
IC 4	"	"	
IC 5	TK15021	"	
IC 6	"	"	
IC 7	M5218P	"	
IC 8	"	"	
IC 9	"	"	
IC10	"	"	
IC11	"	"	
IC12	M5216P	"	
IC401	TC4094BP	Integrated Circuit	
Q 1	–	–	
Q 2	–	–	
Q 3	2SD661T,U	Transistor	
Q 4	"	"	
Q 5	2SD958T,U	"	
Q 6	"	"	
Q 7	"	"	
Q 8	"	"	
Q 9	–	–	
Q10	–	–	
Q11	2SB642R,S	Transistor	
Q12	"	"	
Q13	2SK30A-O	F.E.T.	
Q14	"	"	
Q15	–	–	
Q16	2SD637R,S	Transistor	
Q17	DTC124EF	D. Transistor	
Q18	"	"	
Q19	2SD637R,S	Transistor	
Q20	"	"	
Q21	2SC2878A,B	"	
Q22	"	"	
Q23	2SD637R,S	"	
Q24	"	"	
Q25	–	–	
Q26	2SC2878A,B	Transistor	
Q27	–	–	
Q28	–	–	
Q29	2SC2878A,B	Transistor	
Q30	"	"	
Q31	–	–	
Q32	–	–	
Q33	2SD637R,S	Transistor	
Q34	"	"	
Q35	2SB642R,S	"	
Q36	"	"	
Q37	2SD639R,S	"	
Q38	"	"	
Q39	2SD637R,S	"	
Q40	"	"	
Q41	2SD639R,S	"	
Q42	"	"	
Q43	2SD637R,S	"	
Q44	"	"	
Q45	2SD639R,S	"	

Symbol No.	Part No.	Part Name	Description
Q46	2SD639R,S	Transistor	
Q47	2SB644R,S	"	
Q48	"	"	
Q49	2SD639R,S	"	
Q50	"	"	
Q51	2SB642R,S	"	
Q52	2SD637R,S	"	
Q53	"	"	
Q54	2SD639R,S	"	
Q55	2SB644R,S	"	
Q56	2SD639R,S	"	
Q57	"	"	
Q58	"	"	
Q59	2SD637R,S	"	
Q60	"	"	
Q61	–	–	
Q62	2SD973A,R	Transistor	
Q63	2SB793A,R	"	
Q64	2SB788T,U	"	
Q65	"	"	
Q66	2SC2878A,B	"	
Q67	"	"	
Q401	2SD639R,S	Transistor	
Q402	"	"	
⚠ Q403	2SD973A,R	"	
⚠ Q404	"	"	
⚠ Q405	"	"	
⚠ Q406	"	"	
Q407	2SD639R,S	"	
Q408	"	"	
⚠ Q409	2SD973A,R	"	
⚠ Q410	"	"	
Q411	2SD639R,S	"	
Q412	2SC2878A,B	"	
⚠ Q413	2SD973A,R	"	
⚠ Q414	"	"	
⚠ Q415	"	"	
⚠ Q416	"	"	
Q417	2SD639R,S	"	
Q418	"	"	
Q419	DTC124EF	D. Transistor	
Q420	"	"	
Q421	–	–	
Q422	–	–	
Q423	2SC2878A,B	Transistor	
Q424	"	"	
Q425	2SB642R,S	"	
Q426	"	"	
Q427	DTC124EF	D. Transistor	
Q428	"	"	
Q429	–	–	
Q430	–	–	
Q431	–	–	
Q432	–	–	
Q433	–	–	
Q434	–	–	
Q435	2SD639R,S	Transistor	
Q436	"	"	
Q437	2SC2878A,B	"	
Q438	"	"	
Q439	DTA124EF	D. Transistor	

Symbol No.	Part No.	Part Name	Description
Q440	DTA124EF	D. Transistor	
Q441	2SC2878A,B	Transistor	
Q442	"	"	
Q443	DTA124EF	D. Transistor	
Q444	"	"	
Q445	DTC124EF	"	
Q446	2SB642R,S	Transistor	
Q447	2SD1253AP,Q	"	
⚠ Q448	2SD637R,S	"	
Q449	DTC124EF	D. Transistor	
Q450	"	"	
Q451	DTA124EF	"	
Q452	DTC124EF	"	
Q453	DTA124EF	"	
Q454	DTC124EF	"	
Q455	2SC2878A,B	Transistor	
Q456	"	"	
Q457	2SD639R,S	"	
Q458	"	"	
Q459	DTA124ES	D. Transistor	
D 1	–	–	
D 2	–	–	
D 3	–	–	
D 4	–	–	
D 5	–	–	
D 6	–	–	
D 7	RD10EB2	Zener Diode	
D 8	"	"	
D 9	–	–	
D10	–	–	
D11	RD10EB2	Zener Diode	
D12	"	"	
D13	1SS133	Diode	
D14	"	"	
D15	–	–	
D16	–	–	
D17	1SS133	Diode	
D18	"	"	
D19	–	–	
D20	1SS133	Diode	
D21	–	–	
D22	–	–	
D23	–	–	
D24	–	–	
D25	RD13EB3	Zener Diode	
D26	"	"	
D27	RD15EB2	"	
D28	"	"	
D29	RD10EB2	"	
D30	"	"	
D31	OA90	Diode	
D32	"	"	
D33	"	"	
D34	"	"	
D35	RD10EB2	Zener Diode	
D36	"	"	
D37	"	"	
D38	"	"	
D39	RD3.9EB2	"	
D40	"	"	

Audio

Symbol No.	Part No.	Part Name	Description
D401	–	–	
D402	–	–	
D403	–	–	
D404	–	–	
D405	–	–	
D406	–	–	
D407	1SS133	Diode	
D408	"	"	
D409	–	–	
D410	–	–	
D411	–	–	
D412	–	–	
D413	1SS133	Diode	
D414	"	"	
D415	"	"	
D416	"	"	
D417	WO3C	"	
D418	"	"	
D419	1SS133	"	
D420	"	"	
D421	RD5.6EB2	Zener Diode	
D422	"	"	
D423	1SS133	Diode	
D424	"	"	
D425	"	"	
D426	"	"	
D427	"	"	
D428	"	"	
D429	RD13EB3	Zener Diode	
D430	RD15EB2	"	
D431	–	–	
D432	1SS133	Diode	
D433	"	"	
R 1	QVZ3506-152	VR	AUD-1 PB EQ
R 2	" -152	"	AUD-2 PB EQ
R 3	" -103	"	AUD-1 PB LEV
R 4	" -103	"	AUD-2 PB LEV
R 5	" -472	"	AUD-1 LIM
R 6	" -472	"	AUD-2 LIM
R 7	–	–	
R 8	QVZ3506-103	VR	AUD-2 CT CAN
R 9	" -223	"	AUD-1 REC LEV
R10	" -223	"	AUD-2 REC LEV
R11	–	–	
R12	–	–	
R13	QVZ3506-332	VR	AUD-1 METER
R14	" -332	"	AUD-2 METER
R15	–	–	
R16	–	–	
R17	–	–	
R18	–	–	
R19	QVZ3506-223	VR	MONI LEV
R20	–	–	
R21	QRD167J-563	CR	
R22	" -563	"	
R23	" -563	"	
R24	" -563	"	
R25	–	–	

Symbol No.	Part No.	Part Name	Description
R26	–	–	
R27	QRD167J-563	CR	
R28	" -563	"	
R29	" -103	"	
R30	" -103	"	
R31	" -563	"	
R32	" -563	"	
R33	" -333	"	
R34	" -333	"	
R35	" -823	"	
R36	" -823	"	
R37	" -562	"	
R38	" -562	"	
R39	" -221	"	
R40	" -221	"	
R41	" -101	"	
R42	" -101	"	
R43	–	–	
R44	–	–	
R45	QRD167J-822	CR	
R46	" -822	"	
R47	" -105	"	
R48	" -105	"	
R49	" -105	"	
R50	" -105	"	
R51	" -185	"	
R52	" -185	"	
R53	–	–	
R54	–	–	
R55	QRD167J-822	CR	
R56	" -822	"	
R57	" -272	"	
R58	" -272	"	
R59	" -183	"	
R60	" -183	"	
R61	" -122	"	
R62	" -122	"	
R63	" -104	"	
R64	" -104	"	
R65	" -100	"	
R66	" -100	"	
R67	" -563	"	
R68	" -563	"	
R69	–	–	
R70	–	–	
R71	QRD167J-122	CR	
R72	" -122	"	
R73	" -472	"	
R74	" -472	"	
R75	" -124	"	
R76	" -124	"	
R77	" -821	"	
R78	" -821	"	
R79	" -181	"	
R80	" -181	"	
R81	QRV143F-1203	MFR	
R82	" -1203	"	
R83	–	–	
R84	QRD167J-682	CR	
R85	" -823	"	
R86	" -823	"	
R87	" -272	"	
R88	" -272	"	
R89	" -272	"	
R90	" -272	"	

Symbol No.	Part No.	Part Name	Description
R91	QRD167J-561	CR	
R92	" -561	"	
R93	" -393	"	
R94	" -393	"	
R95	—	—	
R96	QRD167J-562	CR	
R97	" -221	"	
R98	" -221	"	
R99	" -223	"	
R100	" -223	"	
R101	" -272	"	
R102	" -272	"	
R103	—	—	
R104	QRD167J-562	CR	
R105	—	—	
R106	QRD167J-104	CR	
R107	" -561	"	
R108	" -561	"	
R109	—	—	
R110	QRD167J-153	CR	
R111	" -122	"	
R112	" -122	"	
R113	" -334	"	
R114	" -334	"	
R115	" -104	"	
R116	" -104	"	
R117	—	—	
R118	QRD167J-153	CR	
R119	—	—	
R120	QRD167J-273	CR	
R121	—	—	
R122	—	—	
R123	QRD167J-103	CR	
R124	" -103	"	
R125	—	—	
R126	—	—	
R127	—	—	
R128	—	—	
R129	—	—	
R130	—	—	
R131	QRD167J-202	CR	
R132	" -202	"	
R133	" -562	"	
R134	" -562	"	
R135	" -391	"	
R136	" -391	"	
R137	" -561	"	
R138	" -561	"	
R139	" -223	"	
R140	" -223	"	
R141	" -273	"	
R142	" -273	"	
R143	" -122	"	
R144	" -122	"	
R145	" -561	"	
R146	" -561	"	
R147	" -104	"	
R148	" -104	"	
R149	—	—	
R150	—	—	
R151	—	—	
R152	—	—	
R153	QRD167J-122	CR	
R154	" -122	"	
R155	" -222	"	

Symbol No.	Part No.	Part Name	Description
R156	QRD167J-222	CR	
R157	" -561	"	
R158	" -561	"	
R159	" -222	"	
R160	" -222	"	
R161	" -392	"	
R162	" -392	"	
R163	" -682	"	
R164	" -682	"	
R165	" -682	"	
R166	" -682	"	
⚠ R167	QRZ0054-100	FR	
⚠ R168	" -100	"	
⚠ R169	" -100	"	
⚠ R170	" -100	"	
R171	QRG019J-270S	OMR	
R172	" -270S	"	
R173	QRD167J-102	CR	
R174	" -102	"	
R175	" -223	"	
R176	" -223	"	
R177	" -222	"	
R178	" -222	"	
R179	" -273	"	
R180	" -273	"	
R181	" -822	"	
R182	" -822	"	
R183	" -823	"	
R184	" -823	"	
R185	" -823	"	
R186	" -823	"	
R187	" -823	"	
R188	" -823	"	
R189	" -823	"	
R190	" -823	"	
R191	" -562	"	
R192	" -562	"	
R193	" -183	"	
R194	" -183	"	
R195	" -223	"	
R196	" -223	"	
R197	" -223	"	
R198	" -223	"	
R199	—	—	
R200	—	—	
R201	QRD121J-471	CR	
R202	" -471	"	
R203	QRD167J-333	"	
R204	" -333	"	
R205	" -333	"	
R206	" -333	"	
R207	" -561	"	
R208	" -333	"	
R209	" -333	"	
R210	" -223	"	
R211	" -223	"	
R212	" -221	"	
R213	" -561	"	
R214	" -392	"	
R215	" -682	"	
R216	" -682	"	
⚠ R217	QRZ0054-100	FR	
⚠ R218	" -100	"	
R219	QRG019J-270S	OMR	
R220	QRD167J-102	CR	

Audio

Symbol No.	Part No.	Part Name	Description
R221	QRD167J-330	CR	
R222	" -330	"	
R223	" -153	"	
R224	" -153	"	
⚠ R225	QRZ0054-150	FR	
⚠ R226	" -150	"	
R227	QRD167J-823	CR	
R228	" -823	"	
R229	" -102	"	
R230	" -102	"	
R231	" -121	"	
R232	" -121	"	
R233	" -122	"	
R234	" -122	"	
R235	" -104	"	
R236	" -104	"	
R237	" -183	"	
R238	" -183	"	
R239	" -222	"	
R240	" -222	"	
R241	–	–	
R242	QRD167J-561	CR	
R243	" -561	"	
R244	–	–	
R245	–	–	
R246	–	–	
R247	–	–	
R248	–	–	
R249	–	–	
R250	QRD167J-182	CR	
R251	" -182	"	
R252	" -182	"	
R253	" -472	"	
R254	–	–	
R255	–	–	
R256	–	–	
R257	QRD167J-392	CR	
R258	" -392	"	
R259	–	–	
R260	QRD167J-183	CR	
R261	" -682	"	
R262	" -682	"	
R263	" -223	"	
R264	" -223	"	
R265	" -223	"	
R266	" -223	"	
R267	" -561	"	
R268	" -561	"	
R269	" -561	"	
R270	" -561	"	
R271	" -561	"	
R272	" -561	"	
R273	" -561	"	
R274	" -561	"	
R275	" -561	"	
R276	" -561	"	
R277	" -561	"	
R278	" -561	"	
R279	" -561	"	
R280	" -561	"	
R281	" -271	"	
R282	" -271	"	
R283	" -104	"	
R284	" -104	"	
R285	" -683	"	
R286	" -683	"	
R287	–	–	
R288	QRD167J-105	CR	
R289	QRD167J-333	CR	
R290	" -333	"	
R401	QVZ3506-101	VR	AUD-1 BIAS
R402	" -101	"	AUD-2 BIAS
R403	QRD167J-273	CR	
R404	" -123	"	
R405	" -472	"	
R406	" -822	"	
R407	" -124	"	
R408	" -124	"	
R409	" -153	"	
R410	" -153	"	
R411	" -683	"	
R412	" -683	"	
R413	" -122	"	
R414	" -122	"	
R415	" -122	"	
R416	" -122	"	
R417	" -153	"	
R418	" -153	"	
R419	" -822	"	
R420	" -822	"	
R421	" -822	"	
R422	" -822	"	
R423	" -681	"	
R424	" -681	"	
R425	" -562	"	
R426	" -562	"	
R427	" -562	"	
R428	" -562	"	
⚠ R429	QRZ0054-4R7	FR	
⚠ R430	" -4R7	"	
⚠ R431	" -220	"	
⚠ R432	" -220	"	
R433	QRD167J-391	CR	
R434	" -391	"	
R435	" -102	"	
R436	" -102	"	
R437	" -822	"	
R438	" -822	"	
R439	" -153	"	
R440	" -681	"	
R441	" -562	"	
R442	" -562	"	
R443	" -333	"	
⚠ R444	QRZ0054-100	FR	
⚠ R445	" -4R7	"	
R446	QRD167J-562	CR	
R447	" -153	"	
R448	" -153	"	
R449	" -823	"	
R450	" -103	"	
R451	" -153	"	
R452	" -153	"	
R453	" -822	"	
R454	" -822	"	
R455	" -822	"	
R456	" -822	"	
R457	" -562	"	
R458	" -562	"	
R459	" -562	"	
R460	" -562	"	
R461	" -681	"	
R462	" -681	"	
R463	" -221	"	
R464	" -221	"	
R465	" -122	"	

Symbol No.	Part No.	Part Name	Description
R466	QRD167J-122	CR	
⚠R467	QRZ0054-4R7	FR	
⚠R468	" -4R7	"	
⚠R469	" -270	"	
⚠R470	" -270	"	
R471	—	—	
R472	—	—	
R473	QRD167J-103	CR	
R474	" -103	"	
R475	" -822	"	
R476	" -822	"	
R477	" -683	"	
R478	" -683	"	
R479	—	—	
R480	—	—	
R481	—	—	
R482	—	—	
R483	QRD167J-473	CR	
R484	" -473	"	
R485	" -153	"	
R486	" -153	"	
R487	" -223	"	
R488	" -223	"	
R489	" -472	"	
R490	" -472	"	
R491	—	—	
R492	—	—	
R493	—	—	
R494	—	—	
R495	QRD167J-822	CR	
R496	" -822	"	
R497	" -682	"	
R498	" -682	"	
R499	" -562	"	
R500	" -562	"	
R501	" -563	"	
R502	" -563	"	
R503	" -683	"	
R504	" -683	"	
R505	" -472	"	
R506	" -472	"	
R507	" -822	"	
R508	" -822	"	
R509	" -473	"	
R510	" -473	"	
R511	" -333	"	
R512	" -333	"	
R513	" -102	"	
R514	" -102	"	
R515	" -154	"	
R516	" -154	"	
R517	" -472	"	
R518	" -102	"	
R519	QRD121J-102	"	
R520	QRD167J-103	"	
R521	" -103	"	
R522	" -103	"	
R523	" -473	"	
R524	" -473	"	
R525	—	—	
R526	—	—	
R527	—	—	
R528	—	—	
R529	QRD167J-152	CR	
R530	" -152	"	

Symbol No.	Part No.	Part Name	Description
R531	QRD167J-392	CR	
R532	" -392	"	
R533	—	—	
R534	—	—	
R535	QRD167J-822	CR	
R536	" -822	"	
R537	" -683	"	
R538	" -683	"	
R539	" -823	"	
R540	" -823	"	
R541	" -473	"	
R542	" -473	"	
R543	" -823	"	
R544	" -823	"	
R545	" -333	"	
R546	" -333	"	
R547	" -223	"	
R548	" -223	"	
R549	" -393	"	
R550	" -393	"	
R551	QRD121J-102	"	
R552	QRD167J-682	"	
R553	" -102	"	
R554	QRV143F-2701	MFR	
R555	" -2701	"	
R556	QVP4A0B-103	VR	AUD-1 INS. C LEV
R557	" -103	"	AUD-2 INS. C LEV
R558	QRV143F-2701	MFR	
R559	" -2701	"	
R560	QRD167J-105	CR	
R561	" -105	"	
R562	" -1R0	"	
R563	" -1R0	"	
R564	" -1R0	"	
C 1	QEB41EM-475	LL CAP	
C 2	" -475	"	
C 3	QEPA1EM-475	NP Cap	
C 4	" -475	"	
C 5	QCS11HJ-6R0	C Cap	
C 6	" -6R0	"	
C 7	QER41HM-105	E Cap	
C 8	" -105	"	
C 9	QETA1EM-476	"	
C10	" -476	"	
C11	QEPA1EM-475	NP Cap	
C12	" -475	"	
C13	—	—	
C14	—	—	
C15	QCS11HJ-8R0	C Cap	
C16	" -8R0	"	
C17	QER41EM-475	E Cap	
C18	" -475	"	
C19	QER41CM-106	"	
C20	" -106	"	
C21	QER41EM-106	"	
C22	" -106	"	
C23	QETA1EM-476	"	
C24	" -476	"	
C25	QER41CM-476	"	
C26	" -476	"	
C27	QFN41HJ-103	MY Cap	
C28	" -103	"	
C29	QER41CM-226	E Cap	
C30	" -226	"	

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Symbol No.	Part No.	Part Name	Description
C31	QET41HM-474	E Cap	
C32	″ -474	″	
C33	QER41HM-105	″	
C34	″ -105	″	
C35	QER41EM-106	″	
C36	″ -106	″	
C37	QEPA1EM-475	NP Cap	
C38	″ -475	″	
C39	QER41EM-475	E Cap	
C40	″ -475	″	
C41	–	–	
C42	–	–	
C43	QCS11HJ-560	C Cap	
C44	″ -560	″	
C45	–	–	
C46	QCS11HJ-271	C Cap	
C47	QEB41EM-475	LL Cap	
C48	″ -475	″	
C49	QETA1CM-107	E Cap	
C50	″ -107	″	
C51	QFN41HJ-333	MY Cap	
C52	″ -333	″	
C53	QCS11HJ-101	C Cap	
C54	″ -101	″	
C55	–	–	
C56	QFN41HJ-333	MY Cap	
C57	QETA1EM-476	E Cap	
C58	″ -476	″	
C59	–	–	
C60	QFN41HJ-123	MY Cap	
C61	–	–	
C62	QFN41HJ-222	MY Cap	
C63	QER41CM-226	E Cap	
C64	″ -226	″	
C65	″ -106	″	
C66	″ -106	″	
C67	QCS11HJ-150	C Cap	
C68	″ -150	″	
C69	–	–	
C70	–	–	
C71	–	–	
C72	QER41EM-475	E Cap	
C73	–	–	
C74	QCS11HJ-561	C Cap	
C75	–	–	
C76	QFN41HJ-102	MY Cap	
C77	–	–	
C78	QER41HM-105	E Cap	
C79	QETA1EM-476	″	
C80	″ -476	″	
C81	QEB41EM-475	LL Cap	
C82	″ -475	″	
C83	″ -475	″	
C84	″ -475	″	
C85	QER41EM-226	E Cap	
C86	″ -226	″	
C87	–	–	
C88	–	–	
C89	QER41EM-106	E Cap	
C90	″ -106	″	
C91	QETA1CM-107	″	
C92	″ -107	″	
C93	–	–	
C94	–	–	
C95	QEB41HM-474	LL Cap	or QEE41VM-474

Symbol No.	Part No.	Part Name	Description
C96	QEB41HM-474	LL Cap	or QEE41VM-474
C97	QETA1EM-476	E Cap	
C98	″ -476	″	
C99	QEPA1EM-475	NP Cap	
C100	″ -475	″	
C101	QER41EM-475	E Cap	
C102	″ -475	″	
C103	–	–	
C104	–	–	
C105	QFN41HJ-473	MY Cap	
C106	″ -473	″	
C107	QETA1EM-476	E Cap	
C108	″ -476	″	
C109	–	–	
C110	–	–	
C111	QER41CM-226	E Cap	
C112	″ -226	″	
C113	QETA1CM-227	″	
C114	″ -227	″	
C115	–	–	
C116	–	–	
C117	QER41HM-105	E Cap	
C118	″ -105	″	
C119	–	–	
C120	–	–	
C121	QEN41EM-106	NP Cap	
C122	″ -106	″	
C123	–	–	
C124	–	–	
C125	QFV41HJ-564	TF Cap	
C126	″ -564	″	
C127	QCS11HJ-391	C Cap	
C128	″ -391	″	
C129	QER41HM-475	E Cap	
C130	″ -475	″	
C131	QETA1HM-106	″	
C132	″ -106	″	
C133	QFN41HJ-152	MY Cap	
C134	″ -152	″	
C135	QETA1VM-476	E Cap	
C136	″ -476	″	
C137	–	–	
C138	–	–	
C139	QEPA1EM-475	NP Cap	
C140	″ -475	″	
C141	″ -475	″	
C142	″ -475	″	
C143	QCS11HJ-100	C Cap	
C144	QER41EM-106	E Cap	
C145	QER41CM-476	″	
C146	QER41EM-106	″	
C147	–	–	
C148	QER41CM-476	E Cap	
C149	″ -226	″	
C150	QETA1CM-227	″	
C151	QEPA1EM-475	NP Cap	
C152	″ -475	″	
C153	QCS11HJ-150	C Cap	
C154	″ -150	″	
C155	QETA1HM-474	E Cap	
C156	″ -474	″	
C157	QETA1EM-476	″	
C158	″ -476	″	
C159	QER41CM-476	″	
C160	″ -476	″	

Symbol No.	Part No.	Part Name	Description
C161	QER41EM-475	E Cap	
C162	" -475	"	
C163	" -106	"	
C164	" -106	"	
C165	–	–	
C166	–	–	
C167	QETA1EM-476	E Cap	
C168	QETA1CM-337	"	or QET41CM-337
C169	QETA1EM-476	"	
C170	QETA1CM-107	"	
C171	QETA1HM-106	"	
C172	" -106	"	
C173	QEPA1EM-475	NP Cap	
C174	QER41CM-226	E Cap	
C175	" -226	"	
C176	" -226	"	
C177	QETA1CM-107	"	
C178	" -107	"	
C179	QCS11HJ-560	C Cap	
C180	" -560	"	
C181	" -560	"	
C182	" -560	"	
C183	" -560	"	
C184	" -560	"	
C185	QFN41HJ-122	MY Cap	
C186	" -122	"	
C187	QETA1HM-335	E Cap	or QET41HM-335
C188	" -335	"	or " -335
C401	QFP42AJ-392	PP Cap	
C402	QETA1EM-476	E Cap	
C403	QER41HM-105	"	
C404	" -105	"	
C405	QFN41HJ-682	MY Cap	
C406	" -682	"	
C407	" -682	"	
C408	" -682	"	
C409	QER41CM-336	E Cap	
C410	" -336	"	
C411	QETA1VM-476	"	
C412	" -476	"	
C413	QFP42AJ-333	PP Cap	
C414	" -333	"	
C415	QFN41HJ-682	MY Cap	
C416	" -682	"	
C417	QETA1VM-476	E Cap	
C418	QFP42AF-103M	PP Cap	
C419	QER41HM-105	E Cap	
C420	QETA1VM-476	"	
C421	" -476	"	
C422	–	–	
C423	QCF11HP-223	C Cap	
C424	QETA1EM-476	E Cap	
C425	QFN41HJ-682	MY Cap	
C426	" -682	"	
C427	" -682	"	
C428	" -682	"	
C429	QER41CM-226	E Cap	
C430	" -226	"	
C431	QETA1VM-476	"	
C432	" -476	"	
C433	QFP42AJ-752M	PP Cap	or QFP42AF-752M
C434	" -752M	"	or " -752M
C435	–	–	
C436	–	–	
C437	QER41CM-106	E Cap	
C438	" -106	"	
C439	QER41HM-225	"	
C440	" -225	"	
C441	–	–	
C442	–	–	
C443	QETA1HM-225	E Cap	or QET41HM-225
C444	" -225	"	or " -225
C445	QER41HM-335	"	
C446	" -335	"	
C447	QER41EM-475	"	
C448	" -475	"	
C449	" -475	"	
C450	" -475	"	
C451	QER41CM-476	"	
C452	QETA1CM-227	"	
C453	QETA1EM-476	"	
C454	QFP42AJ-222	PP Cap	
C455	QETA1VM-476	E Cap	
C456	" -476	"	
C457	QCT05CH-101	C Cap	
C458	" -101	"	
C459	QETA1EM-476	E Cap	
C460	QER41HM-105	"	
C461	" -105	"	
C462	QER41CM-106	"	
C463	" -106	"	
L 1	–	–	
L 2	PU30771-2	Coil	
L 3	" -2	"	
L 4	" -2	"	
L 5	–	–	
L 6	PGZ00121-332	Peaking Coil	
L 7	" -103	"	
L 8	" -103	"	
L401	PU30771-9	Coil	
L402	PU30284-51R	Choke Coil	
L403	PU53607-471	"	
L404	" -471	"	
L405	PU30284-51R	"	
CP 1	–	–	
⚠CP 2	ICP-F10	Circuit Protector	
⚠CP 3	"	"	
⚠CP 4	"	"	
⚠CP401	ICP-F10	Circuit Protector	

Audio

Symbol No.	Part No.	Part Name	Description
LPF 1	PGZ00236	Low Pass Filter	
LPF 2	"	"	
⚠T401	PU48633	Buffer Trans.	
⚠T402	"	"	
⚠T403	"	"	
⚠T404	"	"	
⚠T405	"	"	
RY401	PU55260	Relay	
RY402	"	"	
CN 1	PU43351-2Y	Cap. Housing	
CN 2	" -2R	"	
CN 3	" -2	"	
CN 4	" -3Y	"	
CN 5	" -3R	"	
CN 6	" -3	"	
CN 7	" -2R	"	
CN 8	" -2Y	"	
CN 9	" -2	"	
CN10	" -3Y	"	
CN11	" -3R	"	
CN12	" -3	"	
CN13	" -4Y	"	
CN14	" -2	"	
CN15	" -3Y	"	
CN16	" -2	"	
CN17	" -3R	"	
CN18	" -4	"	
CN19	" -2R	"	
CN20	" -6	"	
CN21	" -3	"	
CN22	" -2Y	"	
CN41	PU43351-4	Cap. Housing	
CN42	" -2R	"	
CN43	" -9R	"	
	PGZ00361	PWB Spacer	x 2
	PGD20077	Audio PWB Bracket	
	GBST3008ZY	Tapping Screw	x 3
	PGD30269A	PWB Stay (C) Ass'y	
	GBST3008ZY	Tapping Screw	x 3
	PGD30263-1-1	Shield Cover	x 2
	PGD40707	Sheet	
	PU56008	Test Pin	TP1–22, 25–40, 43–52, 54–57, 401–412, 415–422

6.2.4 Drum/capstan servo board assembly 0 4

.... **PGE10022D**

Symbol No.	Part No.	Part Name	Description
IC 1	LM2907N-8	Integrated Circuit	
IC 2	UPC358C	"	
IC 3	TC4011BP	"	
IC 4	TC4069UBP	"	
IC 5	M5218P	"	
IC 6	M5220P	"	
IC 7	M5218P	"	
IC 8	TC4027BP	"	
IC 9	HA17555PS	"	
IC10	LM2907N-8	"	
IC11	TC4069UBP	"	
IC12	TC4011BP	"	
IC13	TC4538BP	"	
IC14	AN6341N	"	
IC15	TC4066BP	"	
IC16	"	"	
IC17	UPC358C	"	
IC18	M5218P	"	
IC19	"	"	
IC20	25VT01	"	
IC21	NJM2903D	"	
IC22	TC4011BP	"	
IC23	"	"	
IC24	TC4066BP	"	
IC25	TC4516BP	"	
IC26	TC4012BP	"	
IC27	TA78L010AP	"	
IC28	NJM2903D	"	
IC29	TC4069UBP	"	
IC30	TC4027BP	"	
IC31	TA78L005AP	"	
IC201	M51490L	Integrated Circuit	
IC202	"	"	
IC203	TC4011BP	"	
IC204	"	"	
⚠IC205	AN6342N	"	
IC206	TC4538BP	"	
IC207	MN50005JVE	"	
IC208	HA17555PS	"	
IC209	AN6344	"	
IC210	4VT01	"	
IC211	NJM2903D	"	
IC212	UPC741C	"	
IC213	HA17555PS	"	
IC214	MN50005JVE	"	
IC215	TC4094BP	"	
IC216	"	"	
IC217	"	"	
IC218	TC4011BP	"	
IC219	TC4069UBP	"	

Symbol No.	Part No.	Part Name	Description
Q 1	2SD636Q,R	Transistor	
Q 2	"	"	
Q 3	"	"	
Q 4	"	"	
Q 5	"	"	
Q 6	2SC1545B	"	
Q 7	2SD636Q,R	"	
Q 8	"	"	
Q 9	"	"	
Q10	2SB641Q,R	"	
Q11	—	—	
Q12	2SD639R	Transistor	
Q13	2SD973A,R	"	
Q14	2SB793A,R	"	
Q15	2SD389A,O	"	
Q16	"	"	
Q17	2SB641Q,R	"	
Q18	2SC458D	"	
Q19	DTC124EF	D. Transistor	
Q20	—	—	
Q21	2SC1545B	Transistor	
Q22	2SD636Q,R	"	
Q23	2SD973A,R	"	
Q24	"	"	
Q25	2SB641Q,R	"	
Q26	2SD636Q,R	"	
Q27	2SB641Q,R	"	
Q28	2SD973A,R	"	
Q29	2SD636Q,R	"	
Q30	"	"	
Q31	"	"	
Q32	"	"	
Q33	2SB641Q,R	"	
Q34	DTC124EF	D. Transistor	
Q35	"	"	
Q36	DTA144EF	"	
Q37	DTC124EF	"	
Q201	2SC1545B	Transistor	
Q202	"	"	
Q203	2SB641Q,R	"	
Q204	2SD636Q,R	"	
Q205	2SB641Q,R	"	
Q206	"	"	
Q207	2SD636Q,R	"	
Q208	"	"	
Q209	"	"	
Q210	"	"	
Q211	"	"	
Q212	"	"	
Q213	"	"	
Q214	"	"	
Q215	2SB641Q,R	"	
Q216	2SD636Q,R	"	
Q217	2SK30A-O	F.E.T.	
Q218	2SB641Q,R	Transistor	
Q219	2SK30A-O	F.E.T.	
Q220	2SD636Q,R	Transistor	
Q221	2SD639R	"	
Q222	2SD973A,R	"	
Q223	2SB793A,R	"	
Q224	2SD389A,O	"	
Q225	"	"	

Symbol No.	Part No.	Part Name	Description
Q226	2SD636Q,R	Transistor	
Q227	"	"	
Q228	"	"	
Q229	DTC124EF	D. Transistor	
Q230	"	"	
Q231	"	"	
Q232	"	"	
Q233	"	"	
Q234	"	"	
Q235	"	"	
Q236	"	"	
Q237	"	"	
Q238	"	"	
Q239	"	"	
Q240	2SD636Q,R	Transistor	
D 1	1SS133	Diode	
D 2	"	"	
D 3	RD3.9EB	Zener Diode	
D 4	1SS133	Diode	
D 5	"	"	
D 6	"	"	
D 7	"	"	
D 8	RD4.7EB2	Zener Diode	
D 9	—	—	
D10	1SS133	Diode	
D11	"	"	
D12	"	"	
D13	"	"	
D14	"	"	
D15	"	"	
D16	"	"	
D17	"	"	
D18	"	"	
D19	"	"	
D20	"	"	
D21	"	"	
D22	"	"	
D23	"	"	
D24	"	"	
D25	"	"	
D26	"	"	
D27	"	"	
D201	1SS133	Diode	
D202	"	"	
D203	"	"	
D204	"	"	
D205	"	"	
D206	"	"	
D207	"	"	
D208	"	"	
D209	"	"	
D210	"	"	
D211	"	"	
D212	"	"	
D213	"	"	
D214	"	"	
D215	"	"	

Drum/capstan servo

Symbol No.	Part No.	Part Name	Description
D216	1SS133	Diode	
D217	"	"	
D218	"	"	
D219	"	"	
D220	"	"	
D221	"	"	
D222	"	"	
D223	"	"	
D224	"	"	
D225	"	"	
D226	"	"	
D227	"	"	
D228	–	–	
D229	–	–	
D230	–	–	
D231	–	–	
D232	1SS133	Diode	
D233	1SS99	"	
D234	1SS133	"	
D235	"	"	
R 1	QRD161J-472	CR	
R 2	QRV143F-6982	MFR	
R 3	QRD161J-472	CR	
R 4	QRV143F-1303	MFR	
R 5	" -4302	"	
R 6	" -1071	"	
R 7	QVP4A0B-102	VR	X10 SEARCH
R 8	QRV143F-3321	MFR	
R 9	QRD161J-472	CR	
R10	QVP4A0B-102	VR	REV X10 SEARCH
R11	QRD161J-472	CR	
R12	QRV143F-1002	MFR	
R13	" -1212	"	
R14	QRD161J-103	CR	
R15	" -103	"	
R16	" -103	"	
R17	" -104	"	
R18	" -224	"	
R19	QRD167J-472	"	
R20	" -222	"	
R21	QRD161J-222	"	
R22	QVP4A0B-471	VR	MR. F
R23	QRD161J-104	CR	
R24	QRD167J-563	"	
R25	QRD161J-223	"	
R26	" -103	"	
R27	" -473	"	
R28	" -473	"	
R29	" -473	"	
R30	" -124	"	
R31	" -102	"	
R32	QRD167J-124	"	
R33	QRD161J-103	"	
R34	" -102	"	
R35	" -102	"	
R36	" -103	"	
R37	" -105	"	
R38	" -103	"	
R39	" -101	"	
R40	" -105	"	
R41	QRD161J-103	CR	
R42	QVP4A0B-473	VR	DC SET1
R43	QRD167J-102	CR	
R44	QRD161J-104	"	
R45	" -105	"	
R46	" -103	"	
R47	" -102	"	
R48	" -103	"	
R49	" -103	"	
R50	QRD167J-392	"	
R51	QRD161J-101	"	
R52	" -103	"	
R53	QVP4A0B-223	VR	DC SET2
R54	QRD161J-103	CR	
R55	" -563	"	
R56	" -123	"	
R57	QRD167J-153	"	
R58	QRD161J-224	"	
R59	" -222	"	
R60	QVP4A0B-222	VR	DC SET3
R61	QRD167J-472	CR	
R62	QRD161J-101	"	
R63	" -333	"	
R64	" -333	"	
R65	" -103	"	
R66	" -223	"	
R67	" -224	"	
R68	" -474	"	
R69	' -154	"	
R70	QRD167J-683	"	
R71	" -104	"	
R72	QRD161J-472	"	
R73	" -472	"	
R74	QRD167J-473	"	
R75	QRD161J-332	"	
R76	" -333	"	
R77	" -474	"	
R78	" -333	"	
⚠ R79	QRG129J-152	OMR	
R80	QRD161J-391	CR	
R81	QRD167J-473	"	
R82	QRD161J-102	"	
R83	" -563	"	
R84	" -392	"	
R85	" -392	"	
R86	" -222	"	
R87	" -223	"	
R88	" -102	"	
⚠ R89	QRZ0054-150	FR	
R90	QRD167J-222	CR	
R91	QRD161J-334	"	
R92	" -105	"	
R93	" -563	"	
⚠ R94	QRZ0054-150	FR	
R95	QRD161J-0R0	CR	
R96	" -0R0	"	
R97	" -0R0	"	
R98	QRD167J-104	"	
R99	QRD161J-222	"	
R100	" -473	"	
R101	" -333	"	
R102	" -103	"	
R103	" -103	"	
R104	QRD143J-392	"	
R105	QRD161J-334	"	

Symbol No.	Part No.	Part Name	Description
R106	QVP4A0B-224	VR	REC PH. 1
R107	QRD161J-103	CR	
R108	QRD167J-683	"	
R109	" -102	"	
R110	QRD161J-102	"	
R111	QRD167J-102	"	
R112	QVZ3501-224	VR	SUB TRA
R113	QRD167J-154	CR	
R114	QRD161J-683	"	
R115	" -223	"	
R116	" -223	"	
R117	QVZ3501-224	VR	REC PH. 2
R118	QRD161J-274	CR	
R119	" -224	"	
R120	QRV143F-1212	MFR	
R121	" -1002	"	
R122	QRD161J-104	CR	
R123	" -103	"	
R124	" -102	"	
R125	QRV143F-1502	MFR	
R126	QRD161J-102	CR	
R127	" -274	"	
R128	" -223	"	
R129	QVZ3501-223	VR	DISCRI
R130	QRD167J-102	CR	
R131	QRV143F-1003	MFR	
R132	QRD167J-473	CR	
R133	QRD161J-102	"	
R134	" -102	"	
R135	QRV143F-1072	MFR	
R136	–	–	
R137	–	–	
R138	QRD161J-474	CR	
R139	" -103	"	
R140	QRD167J-472	"	
R141	QRD161J-474	"	
R142	QRD167J-104	"	
R143	" -394	"	
R144	QRD161J-223	"	
R145	–	–	
R146	QRD161J-103	CR	
R147	" -473	"	
R148	QRD167J-473	"	
R149	" -473	"	
R150	QRD161J-473	"	
R151	QVP4A0B-471	VR	MR. B
R152	QRD161J-105	CR	
R153	" -105	"	
R154	" -103	"	
R155	" -103	"	
R156	" -103	"	
R157	QRD167J-103	"	
R158	QRD161J-474	"	
R159	" -474	"	
R160	QRD167J-103	"	
R161	" -104	"	
R162	" -332	"	
R163	QRD161J-103	"	
R164	QRD167J-103	"	
R165	" -223	"	
R166	QRD161J-105	"	
R167	–	–	
R168	QRD161J-105	CR	
R169	QVP4A0B-104	VR	DC BIAS. R
R170	" -104	"	DC BIAS. F

Symbol No.	Part No.	Part Name	Description
R171	QRD161J-103	CR	
R172	QRD167J-103	"	
R173	QRD161J-472	"	
R174	QRV143F-2873	MFR	
R175	" -5762	"	
R176	QRD161J-224	CR	
R177	QRV143F-6811	MFR	
R178	" -1212	"	
R179	QRD161J-332	CR	
R180	" -103	"	
R181	QVP4A0B-222	VR	STILL WIDTH
R182	QRD161J-332	CR	
R183	" -103	"	
R184	" -103	"	
R185	" -153	"	
R186	QRD167J-103	"	
R187	QRD161J-123	"	
R188	QRD167J-103	"	
R189	" -103	"	
R190	QRD161J-473	"	
R191	" -473	"	
R192	" -103	"	
R193	" -104	"	
R194	" -104	"	
R195	QRD167J-104	"	
R196	QRD161J-472	"	
R197	" -473	"	
R198	QRD167J-104	"	
R199	" -223	"	
R200	QRD161J-473	"	
R201	" -152	"	
R202	QRD167J-224	"	
R203	QRD161J-390	"	
R204	" -390	"	
R205	QRD167J-152	"	
R206	QRD161J-224	"	
R207	" -563	"	
R208	" -223	"	
R209	" -153	"	
R210	" -563	"	
R211	QRD167J-223	"	
R212	QRD161J-153	"	
R213	" -563	"	
R214	" -332	"	
R215	" -472	"	
R216	" -103	"	
R217	QRD167J-102	"	
R218	QRD143J-221	"	
R219	QRD161J-104	"	
R220	" -273	"	
R221	" -682	"	
R222	" -104	"	
R223	" -104	"	
R224	" -473	"	
R225	" -473	"	
R226	" -473	"	
R227	" -104	"	
R228	" -104	"	
R229	" -181	"	
R230	" -103	"	
R231	QRD167J-124	"	
R232	QRD161J-473	"	
R233	" -273	"	
R234	QRD167J-154	"	
R235	QRD161J-473	"	

Drum/capstan servo

Symbol No.	Part No.	Part Name	Description
R236	QRD161J-103	CR	
R237	″ -223	″	
R238	QRD167J-102	″	
R239	QRD161J-562	″	
R240	″ -104	″	
R241	″ -563	″	
R242	″ -104	″	
R243	QRD167J-473	″	
R244	QRD161J-473	″	
R245	″ -473	″	
R246	″ -473	″	
R247	″ -393	″	
R248	″ -682	″	
R249	″ -682	″	
R250	″ -153	″	
R251	″ -153	″	
R252	″ -102	″	
R253	QRD167J-563	″	
R254	QRD161J-104	″	
R255	QRD167J-473	″	
R256	QRD161J-473	″	
R257	″ -563	″	
R258	QRD167J-223	″	
R259	″ -102	″	
R260	QRD161J-103	″	
R261	–	–	
R262	–	–	
R263	QRD161J-184	CR	
R264	QRD167J-332	″	
R265	″ -103	″	
R266	″ -221	″	
R267	QRD161J-823	″	
R268	″ -222	″	
R269	″ -334	″	
R270	″ -105	″	
R271	″ -564	″	
R272	″ -105	″	
R273	QVZ3507-473	VR	PB SW 1
R274	QRD167J-183	CR	
R275	QVZ3507-473	VR	PB SW 2
R276	QRD167J-183	CR	
R277	QRD161J-331	″	
R278	″ -103	″	
R279	″ -333	″	
R280	″ -103	″	
R281	QRV143F-1872	MFR	
R282	QRD161J-103	CR	
R283	QRD167J-474	″	
R284	QRD161J-103	″	
R285	″ -683	″	
R286	″ -104	″	
R287	QRV143F-3161	MFR	
R288	QRD161J-103	CR	
R289	″ -103	″	
R290	″ -153	″	
R291	QRD167J-103	″	
R292	QRD161J-123	″	
R293	″ -103	″	
R294	QRD167J-222	″	
R295	″ -332	″	
R296	QRD161J-103	″	
R297	QRV143F-2873	MFR	
R298	″ -2873	″	
R299	″ -1473	″	
R300	QRD161J-103	CR	

Symbol No.	Part No.	Part Name	Description
R301	QRD167J-103	CR	
R302	QRV143F-8061	MFR	
R303	″ -9312	″	
R304	QRD161J-222	CR	
R305	QVZ3501-103	VR	DISCRIM
R306	QRD167J-221	CR	
R307	″ -823	″	
R308	″ -103	″	
R309	″ -103	″	
R310	″ -224	″	
R311	″ -224	″	
R312	QRD161J-153	″	
R313	″ -103	″	
R314	″ -224	″	
R315	″ -102	″	
R316	″ -474	″	
R317	″ -332	″	
R318	QRD167J-102	″	
R319	QRD161J-223	″	
R320	″ -103	″	
R321	QRD167J-472	″	
R322	QRD161J-105	″	
R323	″ -824	″	
R324	″ -0R0	″	
R325	″ -222	″	
R326	″ -101	″	
R327	QRD167J-223	″	
R328	QRD161J-473	″	
R329	″ -102	″	
R330	″ -103	″	
R331	″ -103	″	
⚠R332	QRZ0054-150	FR	
R333	QRD161J-472	CR	
R334	QRX016J-1R0M	MFR	
R335	QRD161J-224	CR	
R336	″ -103	″	
R337	QRD167J-103	″	
R338	QRD161J-153	″	
R339	QRD167J-153	″	
R340	QRD161J-101	″	
R341	QRD167J-100	″	
R342	QRD161J-103	″	
R343	″ -332	″	
R344	QRD167J-682	″	
R345	QRD161J-103	″	
R346	″ -222	″	
R347	QRD167J-223	″	
R348	QRD161J-563	″	
R349	″ -682	″	
R350	–	–	
R351	QRD161J-153	CR	
R352	″ -103	″	
R353	″ -222	″	
R354	″ -223	″	
R355	QVP4A0B-154	VR	REC SW
R356	QRD167J-124	CR	
R357	QRD161J-103	″	
R358	″ -393	″	
R359	QRD167J-102	″	
R360	QRD161J-682	″	
R361	″ -153	″	
R362	″ -153	″	
R363	QRV143F-6811	MFR	
R364	″ -1372	″	
R365	″ -2742	″	

Symbol No.	Part No.	Part Name	Description
R366	QRV143F-5492	MFR	
R367	" -1103	"	
R368	" -2213	"	
R369	QRD161J-103	CR	
R370	QRD167J-103	"	
R371	QRD161J-682	"	
R372	" -103	"	
R373	" -682	"	
R374	" -103	"	
R375	" -682	"	
R376	" -103	"	
R377	QRV143F-3161	MFR	
R378	QRD161J-103	CR	
R379	QRD167J-153	"	
R380	QRD161J-102	"	
R381	QRD161J-103	"	
R382	QRD167J-223	"	
R383	–	–	
R384	QRD167J-104	CR	
R385	QRD161J-224	"	
R386	" -223	"	
R387	" -223	"	
R388	" -333	"	
R389	QRD167J-223	"	
R390	QRD161J-104	"	
R391	QRD167J-473	"	
R392	" -102	"	
R393	QRD161J-104	"	
R394	" -473	"	
R395	" -222	"	
R396	" -472	"	
R397	" -103	"	
R398	QRV143F-2873	MFR	
R399	QRD167J-224	CR	
R400	" -473	"	
R401	QRD161J-103	"	
R402	QRD167J-223	"	
R403	QRD161J-103	"	
R404	" -223	"	
R405	QRD167J-103	"	
R406	QRD161J-102	"	
R407	–	–	
R408	–	–	
R409	QRD167J-103	CR	
R410	" -103	"	
R411	" -224	"	
R412	QRD161J-473	"	
R413	QRD167J-473	"	
R414	" -223	"	
R415	QRD161J-223	"	
R416	QRD167J-223	"	
R417	QRD161J-473	"	
R418	" -223	"	
R419	QRD167J-104	"	
R420	QRD161J-102	"	
R421	" -104	"	
R422	–	–	
R423	–	–	
R424	–	–	
R425	QRD161J-0R0	CR	
R426	" -0R0	"	
R427	" -0R0	"	
R428	QRD167J-0R0	"	
R429	QRD161J-0R0	"	
R430	" -0R0	"	

Symbol No.	Part No.	Part Name	Description
R431	QRD167J-0R0	CR	
R432	QRD161J-0R0	"	
R433	–	–	
R434	–	–	
R435	–	–	
R436	QRD161J-0R0	CR	
R437	" -0R0	"	
R438	–	–	
R439	QRD161J-0R0	CR	
R440	" -0R0	"	
R441	" -0R0	"	
R442	" -0R0	"	
R443	" -0R0	"	
R444	" -0R0	"	
R445	" -0R0	"	
R446	" -0R0	"	
R447	" -0R0	"	
R448	" -0R0	"	
R449	" -0R0	"	
R450	" -0R0	"	
R451	" -0R0	"	
R452	" -0R0	"	
R453	" -0R0	"	
R454	" -0R0	"	
R455	" -0R0	"	
R456	" -0R0	"	
R457	QRD167J-0R0	"	
R458	QRD161J-0R0	"	
R459	QRD167J-0R0	"	
R460	QRD161J-0R0	"	
R461	–	–	
R462	QRD161J-0R0	CR	
R463	" -0R0	"	
R464	QRD167J-0R0	"	
R465	" -0R0	"	
R466	QRD161J-0R0	"	
R467	" -0R0	"	
R468	" -0R0	"	
R469	" -0R0	"	
R470	" -0R0	"	
R471	" -0R0	"	
R472	" -0R0	"	
R473	" -0R0	"	
R474	" -0R0	"	
R475	" -0R0	"	
R475	–	–	
R476	QRD161J-0R0	CR	
R477	QRD167J-0R0	"	
R478	QRD161J-0R0	"	
R480	" -0R0	"	
R481	QRD167J-0R0	"	
R482	" -0R0	"	
R483	" -0R0	"	
R484	" -0R0	"	
R485	" -0R0	"	
R486	" -0R0	"	
R487	QRD161J-0R0	"	
R488	" -0R0	"	
R489	QRD167J-0R0	"	
R490	QRD161J-0R0	"	
R491	" -0R0	"	
R492	" -0R0	"	
R493	" -0R0	"	
R494	" -0R0	"	
R495	QRD167J-0R0	"	

Drum/capstan servo

Symbol No.	Part No.	Part Name	Description
R496	–	–	
R497	QRD161J-0R0	CR	
R498	" -104	"	
R499	" -222	"	
R500	" -152	"	
C 1	QEE41CM-226	T Cap	
C 2	QCF31HP-103	C Cap	
C 3	QET61CM-107	E Cap	
C 4	QFP42AF-272M	PP Cap	
C 5	QFN31HK-104	MY Cap	
C 6	QET61CM-107	E Cap	
C 7	QCF31HP-103	C Cap	
C 8	QET61CM-106	E Cap	
C 9	" -107	"	
C10	QCF31HP-103	C Cap	
C11	QFN31HK-102	MY Cap	
C12	" -102	"	
C13	QCF31HP-102	C Cap	
C14	" -102	"	
C15	QFN31HJ-104	MY Cap	
C16	QCS31HJ-471	C Cap	
C17	QET41CM-107	E Cap	
C18	QCF31HP-103	C Cap	
C19	QET41CM-107	E Cap	
C20	QCF31HP-103	C Cap	
C21	" -223	"	
C22	QET41CM-476	E Cap	
C23	QFN41HJ-683	MY Cap	
C24	QEE41CM-226	T Cap	
C25	QET61CM-106	E Cap	
C26	QFN31HK-103	MY Cap	
C27	QET61HM-105	E Cap	
C28	QCF31HP-103	C Cap	
C29	QET61CM-227	E Cap	
C30	QET61HM-105	"	
C31	QCF31HP-103	C Cap	
C32	QET61CM-107	E Cap	
C33	QFN31HK-102	MY Cap	
C34	" -103	"	
C35	QCF31HP-103	C Cap	
C36	QET41EM-107	E Cap	
C37	QFN31HK-103	MY Cap	
C38	QFM41HJ-333M	"	
C39	QET61EM-476	E Cap	
C40	QCF31HP-103	C Cap	
C41	QET61CM-107	E Cap	
C42	QFN41HJ-103	MY Cap	
C43	QEE41VM-475	T Cap	
C44	" -475	"	
C45	QFN31HK-103	MY Cap	
C46	QET61HM-476	E Cap	
C47	QCF11HP-223	C Cap	
C48	QFN31HK-103	MY Cap	
C49	QET61HM-106	E Cap	
C50	QET61CM-107	"	

Symbol No.	Part No.	Part Name	Description
C51	QCF31HP-223	C Cap	
C52	QCF11HP-223	"	
C53	QCF31HP-103	"	
C54	QET61CM-227	E Cap	
C55	QFN31HK-332	MY Cap	
C56	QFM41HJ-473M	"	
C57	QFP42AF-154M	PP Cap	
C58	QFN31HK-104	MY Cap	
C59	" -103	"	
C60	" -102	"	
C61	QFM41HJ-273M	"	
C62	QFP42AF-303M	PP Cap	
C63	" -203M	"	
C64	–	–	
C65	QFN31HK-104	MY Cap	
C66	QER41HM-104	E Cap	
C67	QET61HM-474	"	
C68	QET41HM-106	"	
C69	–	–	
C70	–	–	
C71	QET61HM-106	E Cap	
C72	" -106	"	
C73	QEE41CM-226	T Cap	
C74	QFP42AF-202M	PP Cap	
C75	QFN31HK-104	MY Cap	
C76	QET61CM-106	E Cap	
C77	" -107	"	
C78	QCF31HP-103	C Cap	
C79	QFM41HJ-223M	MY Cap	
C80	–	–	
C81	QFN41HK-333	MY Cap	
C82	QFN31HK-102	"	
C83	QCS11HJ-101	C Cap	
C84	" -101	"	
C85	QET61CM-107	E Cap	
C86	QCF31HP-103	C Cap	
C87	" -103	"	
C88	QET61CM-476	E Cap	
C201	QET61CM-476	E Cap	
C202	QCS31HJ-151	C Cap	
C203	QFN31HK-103	MY Cap	
C204	QFN41HK-103	"	
C205	QET41CM-227	E Cap	
C206	QFV41HJ-474M	TF Cap	
C207	QET61CM-476	E Cap	
C208	QCS11HJ-151	C Cap	
C209	QFN41HK-104	MY Cap	
C210	QFN31HK-103	"	
C211	" -103	"	
C212	QFV41HJ-474M	TF Cap	
C213	QET61CM-107	E Cap	
C214	QCF11HP-103	C Cap	
C215	QFN31HK-103	MY Cap	
C216	QCS11HJ-150	C Cap	
C217	QET61CM-227	E Cap	
C218	QCF31HP-103	C Cap	
C219	QCS31HJ-221	"	
C220	" -101	"	

Symbol No.	Part No.	Part Name	Description
C221	QCS31HJ-101	C Cap	
C222	QET61HM-105	E Cap	
C223	QET61CM-227	″	
C224	QCF11HP-103	C Cap	
C225	QET61HM-475	E Cap	
C226	QFN31HK-103	MY Cap	
C227	″ -102	″	
C228	″ -104	″	
C229	QFN41HK-103	″	
C230	QFN31HK-222	″	
C231	″ -104	″	
C232	QET61HM-105	E Cap	
C233	″ -105	″	
C234	QFN31HK-103	MY Cap	
C235	QCS31HJ-330	C Cap	
C236	″ -330	″	
C237	QFN31HK-152	MY Cap	
C238	QCS31HJ-561	C Cap	
C239	QFN31HK-105	MY Cap	
C240	QET61HM-105	E Cap	
C241	QET41HM-105	″	
C242	QCS31HJ-471	C Cap	
C243	QET61CM-476	E Cap	
C244	QCF31HP-223	C Cap	
C245	″ -103	″	
C246	QET61CM-107	E Cap	
C247	QET61HM-105	″	
C248	QFN31HK-104	MY Cap	
C249	QET41HM-105	E Cap	
C250	″ -105	″	
C251	QFM41HJ-473M	MY Cap	
C252	″ -473M	″	
C253	QFN41HK-102	″	
C254	QFP42AG-823M	PP Cap	
C255	QFN31HK-104	MY Cap	
C256	QEE41CM-685	T Cap	
C257	QFN31HK-333	MY Cap	
C258	″ -333	″	
C259	QET41CM-477	E Cap	
C260	QCF11HP-103	C Cap	
C261	QFP42AF-223M	PP Cap	
C262	″ -223M	″	
C263	″ -433M	″	
C264	QFN31HK-104	MY Cap	
C265	QFP42AF-512M	PP Cap	
C266	″ -682M	″	
C267	QFM41HJ-332M	MY Cap	
C268	QET61HM-105	E Cap	
C269	″ -105	″	
C270	QCF11HP-223	C Cap	
C271	QEE41VM-106	T Cap	
C272	″ -106	″	
C273	QFN31HK-472	MY Cap	
C274	QCF11HP-223	C Cap	
C275	QCF31HP-223	″	
C276	QET41CM-107	E Cap	
C277	QET61CM-476	″	
C278	QET41VM-107	″	
C279	QFN41HK-103	MY Cap	
C280	QET61HM-106	E Cap	
C281	″ -105	″	
C282	QET61CM-106	″	
C283	QCF31HP-103	C Cap	
C284	QET61CM-227	E Cap	
C285	QFN31HK-103	MY Cap	

Symbol No.	Part No.	Part Name	Description
C286	QFM41HJ-822M	MY Cap	
C287	QFN31HK-103	″	
C288	″ -472	″	
C289	″ -152	″	
C290	QCS31HJ-561	C Cap	
C291	QFN31HK-102	MY Cap	
C292	QET41CM-476	E Cap	
C293	″ -227	″	
C294	QCF11HP-103	C Cap	
C295	QCF31HP-103	″	
C296	QET61CM-227	E Cap	
C297	QFN31HK-103	MY Cap	
C298	″ -103	″	
C299	″ -103	″	
C300	QET61HM-476	E Cap	
C301	QEE41VM-475	T Cap	
C302	″ -475	″	
C303	QFM41HJ-472M	MY Cap	
C304	QCS11HJ-330	C Cap	
C305	QET61CM-476	E Cap	
C306	QCF11HP-223	C Cap	
C307	″ -223	″	
C308	″ -223	″	
C309	QCS11HJ-101	″	
C310	QET61HM-475	E Cap	
C311	QCS11HJ-680	C Cap	
C312	QCF11HP-103	″	
L 1	PU48530-271K	Peaking Coil	
L 2	″ -271K	″	
L 3	″ -271K	″	
L 4	″ -271K	″	
L 5	″ -271K	″	
L 6	″ -271K	″	
L 7	″ -271K	″	
L 8	″ -271K	″	
L 9	″ -271K	″	
L10	″ -271K	″	
L11	—	—	
L12	PU48530-271K	Peaking Coil	
L201	PU48530-271K	Peaking Coil	
L202	″ -271K	″	
L203	″ -271K	″	
L204	″ -271K	″	
L205	″ -271K	″	
L206	″ -271K	″	
L207	PU30284-51R	Choke Coil	
L208	″ -1R	″	
L209	PU48530-271K	Peaking Coil	
L210	″ -271K	″	
L211	″ -271K	″	
RA 1	EXB-P85224M	Resistor Array	
RA 2	″	″	
RA 3	″	″	
RA 4	″	″	

Drum/capstan servo

Symbol No.	Part No.	Part Name	Description
CN 1	PU43351-2	Cap. Housing	
CN 2	" -2R	"	
CN 3	" -2Y	"	
CN 4	" -2	"	
CN 5	" -3	"	
CN 6	" -2R	"	
CN 7	" -15	"	
CN 8	" -2	"	
CN 9	" -3	"	
CN10	" -6	"	
CN11	" -7Y	"	
CN12	" -3	"	
CN13	" -6	"	
CN14	" -5	"	
CN15	" -3	"	
CN16	" -12	"	
CN17	" -9	"	
CN18	" -5	"	
CN19	" -9	"	
CN20	" -5	"	
CN21	" -2Y	"	
CN22	" -5	"	
CN23	–	–	
CN24	–	–	
CN25	PU43351-2	Cap. Housing	
⚠X 1	PU31449-2	Crystal	
⚠X 2	PU55407	C. Resonator	
	PU54983	Test Pin	TP1–7, 9–25, 27–34, 41–74
	PGD30270A-06	Drum/Cap. Servo Bracket (R) Ass'y	
	GBST3008ZY	Tapping Screw	x 3
	Q03093-404	Nylon Washer	x 3
	PGD30267A	Drum/Cap. Servo Bracket (F) Ass'y	
	GBST3008ZY	Tapping Screw	x 3
	Q03093-404	Nylon Washer	x 3
	PU41624-6	Isolation Washer	for Q16, Q225
	PU45375	TR Spacer	for Q16, Q225
	DPSP3006ZS	Screw	for Q16, Q225
	PU55330-2	PWB Bracket	x 4
	DPSP3008ZY	Screw	x 8
	PU49485-2	Wire Clamp	

6.2.5 Syscon board assembly [0][5] ... PGE10013D-01

Symbol No.	Part No.	Part Name	Description
⚠IC 1	HD6303RP	Integrated Circuit	
IC 2	PGD30240-4-1	"	EPROM
IC 3	–	–	
IC 4	HD6821P	Integrated Circuit	
IC 5	"	"	
IC 6	M74LS20P	"	or HD74LS20
IC 7	M74LS08P	"	or HD74LS08
IC 8	M74LS04P	"	or HD74LS04
IC 9	UPC358C	"	
⚠IC10	TC4069UBP	"	or UPD4069UBC
IC11	M54519P	"	
IC12	HD14021B	"	or TC4021BP or UPD4021BC
IC13	"	"	or TC4021BP or UPD4021BC
IC14	"	"	or TC4021BP or UPD4021BC
IC15	"	"	or TC4021BP or UPD4021BC
IC16	"	"	or TC4021BP or UPD4021BC
IC17	"	"	or TC4021BP or UPD4021BC
IC18	LM6416E-1985	"	
IC19	M54519P	"	
IC20	"	"	
IC21	M54544L	"	
IC22	TC4094BP	"	or UPD4094BC
IC23	"	"	or "
IC24	TC4069UBP	"	or UPD4069UBC
IC25	LM6416E-1985	"	
⚠IC26	MB88501-382L	"	
IC27	LM6416E-1985	"	
IC28	UPC1458C	"	
IC29	TC4050BP	"	
IC30	TC4053BP	"	
IC31	"	"	
IC32	HD14021B	"	or TC4021BP or UPD4021BC
IC33	"	"	or TC4021BP or UPD4021BC
IC34	"	"	or TC4021BP or UPD4021BC
IC35	TC4094BP	"	or UPD4094BC
IC36	"	"	or "
IC37	"	"	or "
IC38	M54519P	"	
IC39	M54544L	"	
IC40	"	"	
IC41	M54519P	"	
IC42	"	"	
IC43	HD14021B	"	or TC4021BP or UPD4021BC
IC44	–	–	
IC45	TC4050BP	Integrated Circuit	
IC46	TC4013BP	"	
IC47	TC4538BP	"	

Symbol No.	Part No.	Part Name	Description
Q 1	–	–	
Q 2	DTA124EF	D. Transistor	
Q 3	"	"	
Q 4	"	"	
Q 5	"	"	
Q 6	"	"	
Q 7	"	"	
Q 8	"	"	
Q 9	DTC124EF	"	
Q10	"	"	
Q11	2SB907	Transistor	
Q12	"	"	
Q13	"	"	
Q14	"	"	
Q15	"	"	
Q16	"	"	
Q17	DTA124EF	D. Transistor	
Q18	"	"	
Q19	DTC124EF	"	
Q20	"	"	
D 1	1SS133	Diode	
D 2	"	"	
D 3	"	"	
D 4	RD8.2EB2	Zener Diode	
D 5	1SS133	Diode	
D 6	"	"	
D 7	RD5.1EB2	Zener Diode	
D 8	1SS133	Diode	
D 9	"	"	
D10	"	"	
D11	"	"	
D12	"	"	
D13	"	"	
D14	"	"	
D15	"	"	
D16	"	"	
D17	"	"	
D18	"	"	
D19	"	"	
D20	"	"	
D21	"	"	
D22	VO3C	"	
D23	"	"	
D24	"	"	
D25	1SS133	"	
D26	"	"	
D27	"	"	
D28	"	"	
D29	"	"	
D30	"	"	
D31	"	"	
D32	RD3.3EB2	Zener Diode	
D33	1SS133	Diode	
D34	"	"	
D35	"	"	
D36	"	"	
D37	"	"	
D38	"	"	
D39	"	"	
D40	"	"	

Symbol No.	Part No.	Part Name	Description
R 1	–	–	
R 2	–	–	
R 3	QRD167J-473	CR	
R 4	" -821	"	
R 5	" -562	"	
R 6	" -103	"	
R 7	" -103	"	
R 8	" -103	"	
R 9	" -473	"	
R10	" -473	"	
R11	" -473	"	
R12	" -473	"	
R13	" -103	"	
R14	" -333	"	
R15	" -473	"	
R16	" -563	"	
R17	" -391	"	
R18	" -333	"	
R19	" -563	"	
R20	" -391	"	
R21	" -333	"	
R22	" -473	"	
R23	" -473	"	
R24	QRD121J-821	"	
R25	QRD167J-184	"	
R26	" -224	"	
R27	" -472	"	
R28	" -272	"	
R29	" -104	"	
R30	" -103	"	
R31	" -124	"	
R32	" -473	"	
R33	" -394	"	
R34	" -104	"	
R35	" -474	"	
R36	" -104	"	
R37	" -105	"	
R38	" -473	"	
R39	" -103	"	
R40	–	–	
R41	QRD167J-473	CR	
R42	" -473	"	
R43	" -103	"	
R44	" -103	"	
R45	" -103	"	
R46	" -103	"	
R47	" -103	"	
R48	" -103	"	
R49	" -473	"	
R50	" -105	"	
R51	QRV187F-2002	MFR	
R52	" -1002	"	
R53	" -4991	"	
R54	" -2491	"	
R55	QRD167J-473	CR	
R56	" -473	"	
R57	" -473	"	
R58	" -473	"	
R59	" -103	"	
R60	" -333	"	
R61	" -103	"	
R62	" -103	"	
R63	" -103	"	
R64	" -103	"	
R65	" -103	"	

Syscon

Symbol No.	Part No.	Part Name	Description
R66	–	–	
R67	QRD167J-103	CR	
R68	″ -222	″	
R69	″ -222	″	
R70	″ -222	″	
R71	″ -222	″	
R72	″ -222	″	
R73	″ -473	″	
R74	″ -473	″	
R75	″ -103	″	
R76	″ -103	″	
R77	″ -103	″	
R78	″ -103	″	
R79	″ -103	″	
R80	–	–	
R81	–	–	
R82	–	–	
R83	QRD167J-222	CR	
R84	″ -222	″	
R85	″ -222	″	
R86	″ -222	″	
R87	″ -221	″	
R88	″ -221	″	
R89	″ -221	″	
R90	″ -103	″	
R91	″ -103	″	
R92	″ -103	″	
R93	″ -103	″	
R94	″ -103	″	
R95	″ -103	″	
R96	″ -103	″	
R97	″ -103	″	
R98	″ -103	″	
R99	″ -103	″	
R100	″ -103	″	
R101	″ -103	″	
R102	″ -103	″	
R103	″ -103	″	
R104	″ -103	″	
R105	″ -103	″	
R106	″ -102	″	
R107	″ -102	″	
R108	″ -102	″	
R109	″ -222	″	
R110	″ -222	″	
R111	″ -222	″	
R112	″ -222	″	
R113	″ -222	″	
R114	″ -222	″	
R115	″ -473	″	
R116	″ -473	″	
R117	″ -473	″	
R118	″ -473	″	
R119	″ -473	″	
R120	″ -473	″	
⚠ R121	QRG019J-820S	OMR	
⚠ R122	″ -820S	″	
⚠ R123	QRG029J-680G	″	
R124	QRD167J-473	CR	
R125	″ -473	″	
R126	″ -0R0	″	
R127	–	–	
R128	QRD167J-473	CR	
R129	″ -473	″	
R130	″ -333	″	

Symbol No.	Part No.	Part Name	Description
R131	QRD167J-472	CR	
R132	″ -101	″	
R133	″ -101	″	
R134	″ -101	″	
R135	″ -101	″	
R136	″ -101	″	
R137	″ -101	″	
R138	″ -101	″	
R139	″ -101	″	
R140	″ -104	″	
R141	″ -472	″	
R142	″ -104	″	
R143	″ -104	″	
R144	″ -103	″	
R145	″ -103	″	
R146	″ -103	″	
R147	″ -103	″	
R148	″ -472	″	
R149	″ -103	″	
R150	″ -103	″	
R151	″ -103	″	
R152	″ -103	″	
R153	″ -472	″	
R154	″ -472	″	
R155	″ -472	″	
R156	″ -472	″	
R157	–	–	
R158	QRG029J-100G	OMR	
R159	″ -121G	″	
R160	QRD167J-105	CR	
R161	″ -103	″	
⚠ R162	QRG029J-680G	OMR	
R163	QRD167J-104	CR	
R164	″ -101	″	
R165	″ -101	″	
R166	″ -101	″	
R167	″ -101	″	
R168	″ -101	″	
R169	″ -101	″	
R170	″ -101	″	
R171	″ -101	″	
R172	″ -101	″	
R173	″ -101	″	
R174	″ -101	″	
C 1	QET41CM-227	E Cap	
C 2	″ -227	″	
C 3	QET41HM-107	″	
C 4	″ -475	″	
C 5	″ -105	″	
C 6	–	–	
C 7	–	–	
C 8	–	–	
C 9	QFN41HK-183	MY Cap	
C10	″ -103	″	
C11	QCF11HP-103	C Cap	
C12	QCS11HJ-471	″	
C13	″ -471	″	
C14	″ -101	″	
C15	″ -101	″	
C16	QCF31HP-473	″	
C17	–	–	
C18	–	–	
C19	QCF31HP-473	C Cap	
C20	QCS11HJ-470	″	
C21	″ -470	″	
C22	QFN41HK-104	MY Cap	
C23	QCF31HP-473	C Cap	
C24	″ -473	″	
C25	″ -473	″	

Symbol No.	Part No.	Part Name	Description
C26	QCF31HP-473	C Cap	
C27	QET41CM-106	E Cap	
C28	″ -106	″	
C29	″ -106	″	
C30	QCF31HP-472	C Cap	
C31	″ -472	″	
C32	–	–	
C33	QCF31HP-473	C Cap	
C34	″ -473	″	
C35	″ -473	″	
C36	″ -473	″	
C37	″ -473	″	
C38	″ -473	″	
C39	″ -473	″	
C40	″ -473	″	
C41	″ -473	″	
C42	″ -473	″	
C43	″ -473	″	
C44	″ -473	″	
C45	″ -473	″	
C46	″ -473	″	
C47	″ -473	″	
C48	″ -473	″	
C49	QFN41HK-102	MY Cap	
C50	QCF31HP-473	C Cap	
C51	″ -473	″	
C52	QFN41HK-102	MY Cap	
C53	QET41EM-476	E Cap	
C54	″ -476	″	
C55	″ -476	″	
L 1	PU48530-271K	Peaking Coil	
L 2	″ -271K	″	
L 3	″ -271K	″	
RA 1	EXB-P88104M	Resistor Array	
RA 2	″	″	
RA 3	″	″	
RA 4	″	″	
RA 5	EXB-P85104M	″	
RA 6	″	″	
RA 7	EXB-P84104M	″	
RA 8	EXB-P88104M	″	
RA 9	″	″	
RA10	″	″	
RA11	″	″	
RA12	EXB-P84104M	″	
⚠CF 1	PU54060	Ceramic Filter	800 kHz
⚠CF 2	PGZ00142	″	4.19 MHz
SW 1	QSS1K81-L01	Dip Switch	
SW 2	QSS1K41-L01	″	
SW 3	″ -L01	″	

Symbol No.	Part No.	Part Name	Description
⚠VA 1	PU49624-2	Varistor	
⚠VA 2	″ -2	″	
⚠VA 3	″ -2	″	
⚠VA 4	″ -2	″	
⚠VA 5	″ -2	″	
⚠VA 6	″ -2	″	
⚠VA 7	″ -2	″	
⚠VA 8	″ -2	″	
⚠VA 9	″ -2	″	
⚠VA10	″ -2	″	
⚠VA11	″ -2	″	
⚠VA12	″ -2	″	
⚠VA13	″ -2	″	
⚠VA14	″ -2	″	
⚠VA15	″ -2	″	
⚠VA16	″ -2	″	
⚠VA17	″ -2	″	
⚠VA18	″ -2	″	
⚠VA19	″ -2	″	
⚠VA20	″ -2	″	
⚠VA21	″ -2	″	
⚠VA22	″ -2	″	
⚠VA23	″ -2	″	
⚠VA24	″ -2	″	
⚠VA25	″ -2	″	
⚠VA26	″ -2	″	
⚠VA27	″ -2	″	
⚠VA28	″ -2	″	
⚠VA29	″ -2	″	
⚠VA30	″ -2	″	
⚠VA31	″ -2	″	
VA32	–	–	
⚠VA33	PU49624-2	Varistor	
⚠VA34	″ -2	″	
⚠VA35	″ -2	″	
⚠VA36	″ -2	″	
⚠VA37	″ -2	″	
⚠VA38	″ -2	″	
⚠VA39	″ -2	″	
⚠VA40	″ -2	″	
⚠VA41	″ -2	″	
⚠VA42	″ -2	″	
CN 1	PGZ00143	Connector	
CN 2	PGZ00144	″	
CN 3	PU43351-6	Cap. Housing	
CN 4	″ -10R	″	
CN 5	″ -2	″	
CN 6	″ -5	″	
CN 7	″ -2	″	
CN 8	″ -2R	″	
CN 9	″ -2Y	″	
CN10	″ -4R	″	
CN11	″ -3R	″	
CN12	″ -2	″	
CN13	–	–	
CN14	PU43351-4	Cap. Housing	
CN15	″ -9	″	
CN16	″ -2Y	″	
CN17	″ -7Y	″	
CN18	″ -4	″	
CN19	″ -8R	″	
CN20	″ -7	″	

Syscon

Symbol No.	Part No.	Part Name	Description
CN21	PU43351-6	Cap. Housing	
CN22	" -7Y	"	
CN23	" -5Y	"	
CN24	" -8R	"	
CN25	" -6	"	
	" -7	"	
CN26	" -8	"	
CN27	" -2	"	
CN28	" -2R	"	
CN29	" -4	"	
CN30	" -2Y	"	
CN31	" -2	"	
⚠X'TAL	PU56805	Crystal	4 MHz
	PGZ00147-028	IC Socket	for IC2 or PGZ00003-2 or PGZ00331-028
	PGD30230A	Syscon Bracket(F) Ass'y	
	GBST3008ZY	Tapping Screw	x 4
	PGD30232-1-1	Connect Bracket	
	GBST3008ZY	Tapping Screw	x 2
	WBS3000N	Washer	
	PGD30238	Syscon Bracket	
	GBST3008ZY	Tapping Screw	x 3
	PU43135-2-105	Nylon Edgging	

6.2.6 Fuse board assembly $\boxed{0}\boxed{6}$ PGE20057B-1

Symbol No.	Part No.	Part Name	Description
Q 1	2SD636R,S	Transistor	
Q 2	"	"	
D 1	LN10204P	LED	
D 2	LN2G	"	
R 1	QRD167J-332	CR	
R 2	" -822	"	
R 3	" -102	"	
R 4	" -822	"	
R 5	" -332	"	
R 6	" -332	"	
R 7	" -332	"	
R 8	" -332	"	
R 9	" -332	"	
R10	" -332	"	
R11	" -822	"	
R12	" -474	"	
R13	" -474	"	
R14	" -822	"	
R15	" -822	"	
R16	" -333	"	
R17	" -333	"	
R18	QVP4A0B-333	VR	TAPE END SEN
R19	" -333	"	TAPE BEGIN SEN
R20	QRD167J-681	CR	
R21	" -681	"	
C 1	QET41HM-474	E Cap	
C 2	" -474	"	
C 3	QCF11HP-473	C Cap	
C 4	" -473	"	
CN 1	PU43351-10	Cap. Housing	
CN 2	" -11Y	"	
CN 3	" -6	"	
CN 4	" -9	"	
CN 5	" -4Y	"	
CN 6	" -10R	"	
CN 7	" -2Y	"	
CN 8	" -2	"	
CN 9	" -2R	"	
CN10	" -3	"	
CN11	" -3Y	"	
CN12	" -3R	"	
CN13	" -2Y	"	
CN14	" -2	"	
CN15	" -2R	"	
CN16	" -3R	"	
⚠	PU51212	Fuse Clip	for F4—14
	PU45972-4	Sticker	
	PU54983	Test Pin	TP1, 2

Fuse

Symbol No.	Part No.	Part Name	Description
The following fuses are included in PGE20057B-1.			
⚠F 4	QMF51E2-1R0	Fuse	T1.0A, AC 250V
⚠F 5	" -1R0	"	T1.0A, "
⚠F 6	" -R80	"	T0.8A, "
⚠F 7	" -R80	"	T0.8A, "
⚠F 8	" -R80	"	T0.8A, "
⚠F 9	" -3R15	"	T3.15A, "
⚠F10	" -3R15	"	T3.15A, "
⚠F11	" -2R5	"	T2.5A, "
⚠F12	" -1R0	"	T1.0A, "
⚠F13	" -1R0	"	T1.0A, "
⚠F14	" -1R0	"	T1.0A, "

6.2.7 Front switch board 0 7

Symbol No.	Part No.	Part Name	Description
	PGE20080	Circuit Board	
SW 1	QSL2318-002	Lever Switch	REMOTE
SW 2	QSL2218-111	"	MEMORY
SW 3	QSL2318-002	"	SYNC.
SW 4	QSL2318-002	"	FRAME SERVO
SW 5	QSL2218-111	"	VIDEO OUT
SW 6	QSL4324-001	"	AUDIO MONITOR
SW 7	QSL2218-111	"	LIM. AUD-2
SW 8	" -111	"	LIM. AUD-1
SW 9	" -111	"	VIDEO MODE
SW10	" -111	"	VIDEO AGC
		"	

6.2.8 PAL control board assembly 0 8 PGE20065B

Symbol No.	Part No.	Part Name	Description
IC201	HA17555PS	Integrated Circuit	
IC202	"	"	
IC203	TC4528BP	"	
⚠IC204	AN6371	"	
IC205	AN607P	"	
IC206	BA401	"	
IC207	"	"	
IC208	SN74LS221N	"	
IC209	TA7347P	"	
IC210	TL592P	"	
IC211	LA7016	"	
Q201	2SC2647C	Transistor	
Q202	2SK30A-OY	F.E.T.	
Q203	2SD638Q,R	Transistor	
Q204	"	"	
Q205	2SC2647C	"	
Q206	"	"	
Q207	"	"	
Q208	"	"	
Q209	"	"	
Q210	"	"	
Q211	"	"	
Q212	"	"	
Q213	"	"	
Q214	"	"	
D 1	–	–	
D 2	–	–	
D 3	–	–	
D 4	–	–	
D 5	1SS133	Diode	
D 6	"	"	
D 7	MA27Q	"	
D 8	1SS133	"	
D 9	MA27W(A)	"	
D201	1SS99	Diode	
D202	"	"	
D203	RD5.6EB	Zener Diode	
D204	1SS133	Diode	
D205	"	"	

PAL control

Symbol No.	Part No.	Part Name	Description
R 1	–	–	
R 2	–	–	
R 3	–	–	
R 4	–	–	
R 5	–	–	
R 6	–	–	
R 7	–	–	
R 8	–	–	
R 9	–	–	
R10	–	–	
R11	–	–	
R12	–	–	
R13	–	–	
R14	–	–	
⚠ R15	QRZ0054-470	FR	
⚠ R16	" -470	"	
⚠ R17	" -470	"	
R18	QRD167J-221	CR	
R19	QVZ3506-472	VR	CARRI. SET
R20	QRD167J-103	CR	
R21	" -101	"	
R22	QVZ3506-103	VR	W CLIP
R23	QRD167J-472	CR	
R24	" -101	"	
R25	QVZ3506-103	VR	D CLIP
R26	QRD167J-472	CR	
R201	QRD167J-223	CR	
R202	" -123	"	
R203	QRV143F-5901	MFR	
R204	QRD167J-223	CR	
R205	" -123	"	
R206	QVZ3507-222	VR	PB POS
R207	QRV143F-1301	MFR	
R208	QVZ3507-682	VR	PB WID
R209	QRD167J-103	CR	
R210	" -102	"	
R211	" -102	"	
R212	" -182	"	
R213	" -102	"	
R214	" -102	"	
R215	" -102	"	
R216	" -822	"	
R217	" -271	"	
R218	" -561	"	
R219	" -822	"	
R220	QVZ3506-102	VR	ERR TUNE
R221	QRD167J-223	CR	
R222	" -333	"	
R223	" -222	"	
R224	" -822	"	
R225	QVZ3506-222	VR	REC APC
R226	QRD167J-224	CR	
R227	" -123	"	
R228	" -332	"	
R229	" -331	"	
R230	" -331	"	
R231	" -101	"	
R232	" -182	"	
R233	" -332	"	
R234	QVZ3507-332	VR	PB PHASE
R235	QRD167J-272	CR	
R236	QRD167J-102	CR	
R237	QVZ3506-102	VR	PB LEV
R238	QRD167J-223	CR	
R239	" -333	"	
R240	" -272	"	
R241	" -181	"	
R242	" -222	"	
R243	" -183	"	
R244	" -181	"	
R245	" -181	"	
R246	" -223	"	
R247	" -222	"	
R248	" -102	"	
R249	" -181	"	
R250	QVZ3506-332	VR	RING BAL
R251	QRD167J-102	CR	
R252	" -122	"	
R253	" -122	"	
R254	QVZ3506-471	VR	RING DL
R255	QRD167J-333	CR	
R256	QVZ3506-472	VR	RING DC BAL
R257	QRD167J-333	CR	
R258	" -333	"	
R259	" -333	"	
R260	" -391	"	
R261	" -102	"	
R262	" -102	"	
R263	QVZ3506-102	VR	RING LEV
R264	QRD167J-183	CR	
R265	" -223	"	
R266	" -332	"	
R267	" -102	"	
R268	" -181	"	
R269	" -102	"	
R270	" -122	"	
R271	" -122	"	
R272	QVZ3506-471	VR	OFF DL
R273	QRD167J-222	CR	
R274	" -103	"	
R275	" -103	"	
R276	" -181	"	
R277	" -824	"	
C 1	–	–	
C 2	–	–	
C 3	–	–	
C 4	–	–	
C 5	QET41CM-476	E Cap	
C 6	QCF11HP-223	C Cap	
C201	QCS11HJ-560	C Cap	
C202	QET41CM-476	E Cap	
C203	QCF11HP-223	C Cap	
C204	QFN41HJ-104	MY Cap	
C205	QFM41HJ-102M	"	

Symbol No.	Part No.	Part Name	Description
C206	QFP42AJ-562	PP Cap	
C207	QCS11HJ-151	C Cap	
C208	QET41CM-476	E Cap	
C209	QCF11HP-223	C Cap	
C210	QFN41HJ-104	MY Cap	
C211	QFP42AJ-562	PP Cap	
C212	QET41CM-476	E Cap	
C213	QCF11HP-223	C Cap	
C214	QFP42AJ-122	PP Cap	
C215	QCS11HJ-100	C Cap	
C216	" -560		
C217	QFN41HJ-103	MY Cap	
C218	QCS11HJ-221	C Cap	
C219	QFN41HJ-333	MY Cap	
C220	QET41CM-106	E Cap	
C221	QFN41HJ-183	MY Cap	
C222	" -103	"	
C223	QCS11HJ-4R0	C Cap	
C224	" -120	"	
C225	" -6R0	"	
C226	" -561	"	
C227	QFN41HJ-563	MY Cap	
C228	" -103	"	
C229	" -223	"	
C230	QET41CM-476	E Cap	
C231	QCF11HP-223	C Cap	
C232	QET41CM-476	E Cap	
C233	QCF11HP-223	C Cap	
C234	QCS11HJ-151	"	
C235	QFN41HJ-222	MY Cap	
C236	" -563	"	
C237	" -333	"	
C238	" -563	"	
C239	" -333	"	
C240	" -563	"	
C241	QET41CM-336	E Cap	
C242	QFN41HJ-102	MY Cap	
C243	QET41CM-476	E Cap	
C244	QCF11HP-223	C Cap	
C245	QFP32AJ-101	PP Cap	
C246	QET41CM-476	E Cap	
C247	QCF11HP-223	C Cap	
C248	QCT05CH-560	"	
C249	QFN41HJ-223	MY Cap	
C250	" -223	"	
C251	QET41CM-106	E Cap	
C252	QFN41HJ-223	MY Cap	
C253	" -223	"	
C254	QET41CM-476	E Cap	
C255	QCF11HP-223	C Cap	
C256	QFM41HJ-332M	MY Cap	
C257	QFN41HJ-223	"	
C258	QET41CM-476	E Cap	
C259	QCF11HP-223	C Cap	
C260	QCS11HJ-181	"	
C261	QFN41HJ-223	MY Cap	
C262	" -223	"	
C263	" -223	"	
C264	" -223	"	
C265	QET41CM-476	E Cap	
C266	QCF11HP-223	C Cap	
C267	QFN41HJ-333	MY Cap	
C268	QET41CM-106	E Cap	
C269	QCS11HJ-181	C Cap	
C270	QFN41HJ-333	MY Cap	

Symbol No.	Part No.	Part Name	Description
C271	QET41CM-476	E Cap	
C272	QCF11HP-223	C Cap	
C273	QFN41HJ-223	MY Cap	
C274	" -223	"	
L 1	–	–	
L 2	PU48530-221K	Peaking Coil	
L201	PU48530-221K	Peaking Coil	
L202	" -221K	"	
L203	" -221K	"	
L204	" -220J	"	
L205	" -1R0K	"	
L206	" -560J	"	
L207	" -221K	"	
L208	" -221K	"	
L209	" -221K	"	
L210	" -471J	"	
L211	" -471J	"	
L212	" -221K	"	
L213	" -221K	"	
L214	" -221K	"	
L215	" -221K	"	
CN 1	PU43351-3R	Cap. Housing	
CN 2	–	–	
CN 3	–	–	
CN 4	–	–	
CN 5	–	–	
CN 6	–	–	
CN 7	PU43351-2Y	Cap. Housing	
CN 8	" -2	"	
CN 9	" -2R	"	
CN10	" -5	"	
CN41	PU43351-2Y	Cap. Housing	
CN42	" -2R	"	
CN43	" -4Y	"	
CN44	" -4	"	
CN45	" -2	"	
⚠X 1	PU42746	Crystal	
CF 1	PU54810	Ceramic Filter	
TH 1	ERT-D2FFL400S	Thermistor	
DL 1	PGZ00321	Delay Line	
SW 1	PU49847	Slide Switch	
TP	PU54983	Test Pin	TP51–57, 152–153, 156

6.2.9 Audio transformer board assembly $\boxed{0}\boxed{9}$ PGE20060B

Symbol No.	Part No.	Part Name	Description
IC 1	M5220P	Integrated Circuit	
R 1	QRD167J-122	CR	
R 2	″ -100	″	
R 3	″ -473	″	
R 4	″ -473	″	
R 5	″ -473	″	
R 6	″ -473	″	
R 7	″ -222	″	
R 8	″ -222	″	
R 9	″ -102	″	
R10	″ -102	″	
R11	QRX019J-151S	MFR	
R12	″ -151S	″	
R13	QRD167J-682	CR	
R14	″ -682	″	
R15	″ -150	″	
R16	″ -104	″	
C 1	–	–	
C 2	–	–	
C 3	QEB41EM-475	LL Cap	
C 4	″ -475	″	
C 5	QCS11HJ-101	C Cap	
C 6	″ -101	″	
C 7	″ -4R0	″	
C 8	″ -4R0	″	
C 9	–	–	
C10	–	–	
C11	QER41CM-106	E Cap	
C12	″ -106	″	
C13	QETA1EM-107	″	
C14	″ -107	″	
C15	QCF11HP-223	C Cap	
C16	″ -223	″	
T 1	PU43676	Input Transformer	
T 2	″	″	
T 3	PGZ00233	Output Transformer	
T 4	″	″	
CN 1	PU43351-3Y	Cap. Housing	
CN 2	″ -3R	″	
CN 3	″ -2Y	″	
CN 4	″ -2	″	
CN 5	″ -2Y	″	
CN 6	″ -2R	″	
CN 7	″ -3	″	
CN 8	″ -3R	″	
CN 9	″ -2	″	
CN10	″ -2Y	″	
CN11	″ -3Y	″	
CN12	″ -3	″	
CN13	″ -2	″	
CN14	PU43351-2R	Cap. Housing	
CN15	″ -4	″	
CN16	″ -2	″	
CN17	″ -2Y	″	
	PGD40331A	Shield Cover Ass'y	
	PGD40286	Shield Cover	
	PGD40287	″	
	PGD40323	″	
	PGD40321	PWB Holder	
	GBST3008ZY	Tapping Screw	x 2
	PU56008	Test Pin	TP1–7

6.2.10 Pre-amp board assembly [1][1] . . PGE30026B-03

Symbol No.	Part No.	Part Name	Description
IC 1	5VT08	Integrated Circuit	
IC 2	"	"	
D 1	1SS133	Diode	
D 2	RD6.8EB	Zener Diode	
D 3	FC63-5	Vari. Cap	
D 4	1SS133	Diode	
D 5	"	"	
D 6	RD6.8EB	Zener Diode	
D 7	FC63-5	Vari. Cap	
D 8	1SS133	Diode	
R 1	QRD167J-473	CR	
R 2	" -184	"	
R 3	" -223	"	
R 4	" -333	"	
R 5	–	–	
R 6	QRD167J-473	CR	
R 7	" -184	"	
R 8	" -223	"	
R 9	" -333	"	
C 1	–	–	
C 2	QCF11HP-223	C Cap	
C 3	QCS11HJ-271	"	
C 4	QFN41HJ-123	MY Cap	
C 5	QCF11HP-223	C Cap	
C 6	QFN41HJ-104	MY Cap	
C 7	QCF11HP-223	C Cap	
C 8	QET41CM-476	E Cap	
C 9	QFN41HJ-333	MY Cap	
C10	–	–	
C11	QCF11HP-223	C Cap	
C12	QCS11HJ-271	"	
C13	QFN41HJ-123	MY Cap	
C14	QCF11HP-223	C Cap	
C15	QFN41HJ-104	MY Cap	
C16	QCF11HP-223	C Cap	
C17	QET41CM-476	E Cap	
C18	QFN41HJ-333	MY Cap	
C19	QCF11HP-223	C Cap	
C20	QET41CM-476	E Cap	
L 1	PU48530-221K	Peaking Coil	
L 2	" -221K	"	
RL 1	PU54003	Relay	
RL 2	"	"	
T 1	PGZ00231	Transformer	
T 2	"	"	

Symbol No.	Part No.	Part Name	Description
CN 1	PU43351-2R	Cap. Housing	
CN 2	" -6	"	
CN 3	" -3	"	
CN 4	" -3Y	"	
CN 5	" -3	"	
CN 6	" -3R	"	
CN 7	" -2	"	
CN 8	" -2Y	"	

6.2.11 Drum terminal board [1][2]

Symbol No.	Part No.	Part Name	Description
	PU48256	Circuit Board	

6.2.12 Video head terminal board [1][3]

Symbol No.	Part No.	Part Name	Description
	PGE40023	Circuit Board	

6.2.13 Auto H phase board assembly $\boxed{1}$ $\boxed{9}$ PGE30048A

Symbol No.	Part No.	Part Name	Description
IC501	–	–	
IC502	TC74HC193P	Integrated Circuit	
IC503	″	″	
IC504	″	″	
IC505	UPD7508C-A28	″	
IC506	TC74HC163P	″	
IC507	″	″	
IC508	″	″	
IC509	TC74HC00P	″	
IC510	TC74HC74P	″	
IC511	″	″	
IC512	″	″	
IC513	TC74HC02P	″	
IC514	TC74HC04P	″	
IC515	″	″	
IC516	TC74HC4040P	″	or MN74HC4040
IC517	TC74HC163P	″	
Q501	2SD636Q,R	Transistor	
Q502	″	″	
Q503	″	″	
Q504	DTC124EF	D. Transistor	
D501	1SS133	Diode	
D502	″	″	
D503	″	″	
D504	″	″	
D505	″	″	
D506	″	″	
D507	1SS135	″	
D508	″	″	
D509	″	″	
D510	″	″	
R501	QRD167J-103	CR	
R502	″ -104	″	
R503	″ -103	″	
R504	″ -102	″	
R505	″ -274	″	
R506	″ -103	″	
R507	″ -103	″	
R508	″ -105	″	
R509	″ -102	″	
R510	″ -682	″	
R511	″ -223	″	
R512	″ -103	″	
R513	″ -103	″	
R514	″ -103	″	
R515	″ -103	″	
R516	″ -473	″	
R517	″ -563	″	
R518	″ -223	″	
R519	″ -222	″	
R520	″ -473	″	
R521	″ -223	″	
R522	″ -224	″	
R523	″ -182	″	
R524	″ -221	″	
R525	″ -103	″	
R526	″ -224	″	
R527	″ -332	″	
C501	QCF11HP-223	C Cap	
C502	″ -223	″	
C503	QCS11HJ-330	″	
C504	″ -330	″	

Symbol No.	Part No.	Part Name	Description
C505	QCF11HP-223	C Cap	
C506	″ -223	″	
C507	″ -223	″	
C508	″ -223	″	
C509	″ -223	″	
C510	″ -223	″	
C511	″ -223	″	
C512	QET41CM-226	E Cap	
C513	QFM41HJ-103M	MY Cap	
C514	QCF11HP-223	C Cap	
C515	QET41CM-227	E Cap	
C516	QCS11HJ-330	C Cap	
C517	QET41CM-476	E Cap	
C518	QFN41HJ-472	MY Cap	
C519	QCF11HP-223	C Cap	
C520	″ -223	″	
C521	″ -223	″	
C522	″ -223	″	
C523	″ -223	″	
L501	PU30284-1R	Choke Coil	
X 3	PGZ00324	C. Resonator	
	PGD30300	Shield Cover	
	PU54983	Test Pin	TP501, 502 504—507

6.2.14 Reel servo board assembly 2 1 PGE20058B

Symbol No.	Part No.	Part Name	Description
IC 1	UPC358C	Integrated Circuit	
IC 2	"	"	
IC 3	"	"	
IC 4	"	"	
IC 5	"	"	
IC 6	–	–	
IC 7	TC4066BP	Integrated Circuit	
IC 8	"	"	
IC 9	"	"	
IC10	"	"	
IC11	TC4094BP	"	
IC12	"	"	
IC13	"	"	
IC14	TC4011BP	"	
IC15	TC4069UBP	"	
IC16	TA7140P	"	
IC17	TC4066BP	"	
Q 1	2SD636R,S	Transistor	
Q 2	"	"	
Q 3	"	"	
Q 4	DTC124EF	D. Transistor	
Q 5	2SD636R,S	Transistor	
Q 6	"	"	
Q 7	"	"	
Q 8	"	"	
Q 9	"	"	
Q10	"	"	
Q11	"	"	
Q12	"	"	
Q13	DTC124EF	D. Transistor	
Q14	"	"	
Q15	"	"	
Q16	"	"	
Q17	"	"	
Q18	"	"	
Q19	2SD636R,S	Transistor	
D 1	1SS133	Diode	
D 2	"	"	
D 3	"	"	
D 4	"	"	
D 5	"	"	
D 6	"	"	
D 7	"	"	
D 8	"	"	
D 9	"	"	
D10	"	"	
D11	"	"	
D12	"	"	
D13	"	"	
D14	"	"	

Symbol No.	Part No.	Part Name	Description
R 1	QVP4A0B-102	VR	SUP. DET LEV
R 2	QRD167J-561	CR	
R 3	" -103	"	
R 4	" -103	"	
R 5	" -103	"	
R 6	" -103	"	
R 7	" -124	"	
R 8	" -472	"	
R 9	QVP4A0B-223	VR	SUP REV TENSION
R10	QRD167J-682	CR	
R11	" -182	"	
R12	" -103	"	
R13	" -104	"	
R14	" -222	"	
R15	QVP4A0B-222	VR	SUP TENSION
R16	QRD167J-222	CR	
R17	" -333	"	
R18	" -103	"	
R19	" -154	"	
R20	" -103	"	
R21	" -103	"	
R22	" -223	"	
R23	" -332	"	
R24	QVP4A0B-682	VR	SUP TENSION LIM
R25	QRD167J-102	CR	
R26	QRV143F-5361	MFR	
R27	QRD167J-223	CR	
R28	QRV143F-5361	MFR	
R29	" -2201	"	
R30	" -4701	"	
R31	QRD167J-224	CR	
R32	QRV143F-7501	MFR	
R33	" -1002	"	
R34	" -4701	"	
R35	QRD167J-152	CR	
R36	QVP4A0B-152	VR	SUP DRAW TENSION
R37	QRD167J-472	CR	
R38	QRV143F-3011	MFR	
R39	" -5621	"	
R40	QRD167J-474	CR	
R41	" -103	"	
R42	–	–	
R43	–	–	
R44	QRD167J-103	CR	
R45	–	–	
R46	QRD167J-182	CR	
R47	" -681	"	
R48	" -224	"	
R49	" -104	"	
R50	" -224	"	
R51	" -104	"	
R52	–	–	
R53	QRD167J-103	CR	
R54	" -103	"	
R55	" -103	"	
R56	" -102	"	
R57	" -331	"	
R58	" -563	"	
R59	" -471	"	
R60	" -681	"	
R61	" -682	"	
R62	QVP4A0B-472	VR	SKEW PRESET
R63	QRD167J-103	CR	
R64	" -222	"	
R65	" -103	"	

Reel servo

Symbol No.	Part No.	Part Name	Description
R66	QRD167J-103	CR	
R67	" -103	"	
R68	QVP4A0B-102	VR	T.U. DET. LEVEL
R69	QRD167J-561	CR	
R70	" -103	"	
R71	" -103	"	
R72	" -103	"	
R73	" -103	"	
R74	" -124	"	
R75	" -472	"	
R76	QVP4A0B-223	VR	T.U. REV. TENSION
R77	QRD167J-332	CR	
R78	" -152	"	
R79	" -103	"	
R80	" -104	"	
R81	" -102	"	
R82	QVP4A0B-472	VR	T.U. TENSION ADJ
R83	–	–	
R84	QRD167J-472	CR	
R85	" -154	"	
R86	" -103	"	
R87	" -103	"	
R88	" -334	"	
R89	–	–	
R90	QRV143F-7501	MFR	
R91	QRD167J-103	CR	
R92	" -103	"	
R93	" -103	"	
R94	" -332	"	
R95	QVP4A0B-682	VR	T.U. TENSION LIM
R96	QRD167J-102	CR	
R97	QRV143F-5491	MFR	
R98	" -4701	"	
R99	" -2201	"	
R100	" -5111	"	
R101	" -2801	"	
R102	" -5621	"	
R103	" -6811	"	
R104	" -5621	"	
R105	QRD167J-474	CR	
R106	" -103	"	
R107	–	–	
R108	–	–	
R109	–	–	
R110	–	–	
R111	–	–	
R112	–	–	
R113	–	–	
R114	QRD167J-333	CR	
R115	" -333	"	
R116	" -333	"	
R117	" -103	"	
R118	" -224	"	
R119	" -224	"	
R120	" -224	"	
R121	" -224	"	
R122	" -473	"	
R123	" -473	"	
R124	" -682	"	
R125	" -682	"	
R126	–	–	
R127	–	–	
R128	QRD167J-333	CR	
R129	" -272	"	
R130	" -103	"	
R131	–	–	
R132	QRD167J-104	CR	
R133	" -123	"	
R134	" -822	"	
R135	QVP4A0B-152	VR	T.U. MDA ADJ
R136	QRD167J-272	CR	
R137	" -682	"	
R138	QVP4A0B-332	VR	REW BACK TENSION
R139	QRD167J-123	CR	
R140	" -822	"	
R141	QVP4A0B-152	VR	SUP MDA ADJ
R142	QRD167J-272	CR	
R143	" -272	"	
R144	QVP4A0B-332	VR	SUP FF BACK TENSION
R145	QRD167J-272	CR	
R146	" -104	"	
R147	" -473	"	
R148	QRV143F-8251	MFR	
R149	QRD167J-272	CR	
R150	" -103	"	
R151	" -103	"	
C 1	QET41CM-107	E Cap	
C 2	QET41HM-105	"	
C 3	QET41CM-106	"	
C 4	QFN41HK-124	MY Cap	
C 5	QET41CM-106	E Cap	
C 6	QFN41HK-123	MY Cap	
C 7	QET41CM-226	E Cap	
C 8	QFN41HJ-224	MY Cap	
C 9	QET41CM-336	E Cap	
C10	" -336	"	
C11	QFV41HJ-104	TF Cap	
C12	QET41CM-106	E Cap	
C13	–	–	
C14	QET41CM-106	E Cap	
C15	" -107	"	
C16	" -106	"	
C17	QCF11HP-223	C Cap	
C18	QET41CM-476	E Cap	
C19	" -106	"	
C20	QFN41HK-103	MY Cap	
C21	" -103	"	
C22	QET41CM-106	E Cap	
C23	" -106	"	
C24	QFN41HK-223	MY Cap	
C25	QET41CM-106	E Cap	
C26	QFN41HK-563	MY Cap	
C27	" -393	"	
C28	QET41CM-476	E Cap	
C29	" -106	"	
C30	" -476	"	
C31	QET41HM-105	"	
C32	QET41CM-106	"	
C33	QFN41HK-124	MY Cap	
C34	QET41CM-106	E Cap	
C35	QFN41HK-123	MY Cap	

Reel servo

Symbol No.	Part No.	Part Name	Description
C36	QFN41HJ-224	MY Cap	
C37	QET41CM-106	E Cap	
C38	" -106	"	
C39	" -106	"	
C40	" -227	"	
C41	" -106	"	
C42	" -476	"	
L 1	PU48530-221K	Peaking Coil	
L 2	" -221K	"	
L 3	PU30284-44R	Choke Coil	
L 4	PU48530-221K	Peaking Coil	
L 5	" -221K	"	
CN 1	PU43351-8	Cap. Housing	
CN 2	" -4Y	"	
CN 3	" -3	"	
CN 4	" -4R	"	
CN 5	" -4	"	
CN 6	" -7	"	
CN 7	" -9	"	
	PU54983	Test Pin	TP1–33

6.2.15 Reel MDA board assembly 2 2 PGE10018A-3

Symbol No.	Part No.	Part Name	Description
IC 1	M51207L	Integrated Circuit	
IC 2	TC4066BP	"	
IC 3	UPC358C	"	
⚠IC 4	HA17555PS	"	
IC 5	UPC358C	"	
IC 6	M51207L	"	
IC 7	TC4066BP	"	
IC 8	UPC358C	"	
IC 9	"	"	
Q 1	2SD636R,S	Transistor	
⚠Q 2	2SB751Q	"	
Q 3	2SD837Q	"	
Q 4	2SD636R,S	"	
Q 5	2SD837Q	"	
Q 6	2SD636R,S	"	
⚠Q 7	2SB751Q	"	
Q 8	2SD837Q	"	
Q 9	2SD636R,S	"	
Q10	2SD837Q	"	
D 1	U05E	Diode	
D 2	"	"	
D 3	1SS133	"	
D 4	"	"	
D 5	"	"	
D 6	"	"	
D 7	–	–	
D 8	1SS133	Diode	
D 9	"	"	
R 1	QRD167J-223	CR	
R 2	" -103	"	
R 3	" -103	"	
R 4	" -394	"	
R 5	" -105	"	
R 6	–	–	
R 7	QRD167J-223	CR	
R 8	" -223	"	
R 9	" -333	"	
R10	" -124	"	
R11	" -103	"	
R12	" -104	"	
R13	" -103	"	
R14	" -103	"	
R15	" -103	"	
R16	" -103	"	
⚠R17	QRF106K-1R0M	Unflammable R	
R18	QRD167J-562	CR	
R19	" -223	"	
R20	" -223	"	
R21	" -223	"	
R22	" -223	"	
R23	" -473	"	
R24	" -392	"	
R25	" -103	"	

Reel MDA

Symbol No.	Part No.	Part Name	Description
R26	QRD167J-472	CR	
R27	″ -223	″	
R28	″ -103	″	
R29	″ -123	″	
R30	″ -223	″	
R31	″ -104	″	
R32	″ -682	″	
R33	″ -223	″	
R34	″ -103	″	
R35	″ -183	″	
R36	″ -103	″	
R37	″ -103	″	
R38	″ -103	″	
R39	″ -223	″	
R40	″ -103	″	
R41	″ -103	″	
R42	″ -394	″	
R43	—	—	
R44	QRD167J-105	CR	
R45	″ -223	″	
R46	″ -223	″	
R47	″ -333	″	
R48	″ -124	″	
R49	″ -104	″	
R50	″ -103	″	
R51	″ -103	″	
R52	″ -103	″	
R53	″ -103	″	
R54	″ -103	″	
⚠R55	QRF106K-1R0M	Unflammable R	
R56	QRD167J-562	CR	
R57	″ -562	″	
R58	″ -223	″	
R59	″ -223	″	
R60	″ -223	″	
R61	″ -103	″	
R62	″ -472	″	
R63	″ -223	″	
R64	″ -103	″	
R65	″ -123	″	
R66	″ -222	″	
R67	″ -104	″	
R68	″ -682	″	
R69	″ -223	″	
R70	″ -562	″	
R71	″ -183	″	
R72	″ -103	″	
R73	″ -103	″	
R74	″ -103	″	
R75	″ -562	″	
R76	QRG129J-821	OMR	
R77	″ -821	″	
R78	QRD167J-333	CR	
R79	″ -123	″	
R80	″ -562	″	
R81	″ -333	″	
R82	″ -123	″	
R83	″ -562	″	
R84	″ -224	″	
R85	″ -562	″	
R86	″ -562	″	

Symbol No.	Part No.	Part Name	Description
C 1	QCF11HP-223	C Cap	
C 2	QET41CM-227	E Cap	
C 3	QFN41HK-273	MY Cap	
C 4	QCF11HP-103	C Cap	
C 5	QET41VM-107	E Cap	
C 6	QCF11HP-223	C Cap	
C 7	QET41HM-227	E Cap	
C 8	QET41CM-106	″	
C 9	QCS11HJ-5R0	C Cap	
C10	QFN41HK-102	MY Cap	
C11	QEU41HM-477	E Cap	
C12	QCF11HP-223	C Cap	
C13	″ -223	″	
C14	QET41CM-227	E Cap	
C15	QET41HM-106	″	
C16	QCF11HP-103	C Cap	
C17	QET41CM-107	E Cap	
C18	QFN41HK-103	MY Cap	
C19	″ -122	″	
C20	QET41CM-227	E Cap	
C21	″ -476	″	
C22	″ -476	″	
C23	QCF11HP-223	C Cap	
C24	QET41HM-227	E Cap	
C25	QFN41HK-273	MY Cap	
C26	QCF11HP-103	C Cap	
C27	QET41VM-107	E Cap	
C28	QCF11HP-223	C Cap	
C29	QET41HM-227	E Cap	
C30	QET41CM-106	″	
C31	QCS11HJ-5R0	C Cap	
C32	QFN41HK-102	MY Cap	
C33	QEU41HM-477	E Cap	
C34	QCF11HP-223	C Cap	
C35	QET41HM-106	E Cap	
C36	QET41CM-227	″	
C37	″ -476	″	
C38	″ -476	″	
L 1	PU48530-271K	Peaking Coil	
L 2	PU50277	Inductor	
L 3	PU48530-271K	Peaking Coil	
L 4	″ -271K	″	
L 5	PU50277	Inductor	
L 6	PU48530-271K	Peaking Coil	
⚠L 7	PGZ00177-581	Choke Coil	
⚠L 8	″ -581	″	
CN 1	PU43351-8	Cap. Housing	
CN 2	″ -2	″	
CN 3	″ -2	″	
CN 4	″ -9	″	
	PGD30234-1-2	Heat Sink	
	DPSP3008ZY	Screw	x 3
	PGD30235-1-2	Shield Cover	
	PGD30255-1-2	″	
	PU41624-6	Isolation Washer	Q2,Q3,Q7,Q8
	PU45375	TR Spacer	″
	DPSP3006ZS	Screw	″
	PU54983	Test Pin	TP1—29

6.2.16 Colour frame servo board assembly 2 4 .... PGE20081A-04

Symbol No.	Part No.	Part Name	Description
IC 1	–	–	
IC 2	TC4069UBP	Integrated Circuit	
IC 3	TC4071BP	″	
IC 4	TC4082BP	″	
IC 5	TC4584BP	″	
IC 6	–	–	
IC 7	TC4538BP	Integrated Circuit	
IC 8	TC4085BP	″	
IC 9	TC4081BP	″	
IC10	–	–	
IC11	TC4085BP	Integrated Circuit	
⚠IC12	TC74HC4040P	″	
IC13	TC4001BP	″	
IC14	–	–	
IC15	TC4015BP	Integrated Circuit	
IC16	TC4013BP	″	
IC17	TC4069UBP	″	
IC18	–	–	
⚠IC19	TC4040BP	Integrated Circuit	
IC20	TC4013BP	″	
IC21	″	″	
IC22	TC40161BP	″	
IC23	TC4015BP	″	
IC24	TC4017BP	″	
IC25	TC4013BP	″	
IC26	TC4001BP	″	
IC27	TC4013BP	″	
IC28	TC4015BP	″	
IC29	TC4069UBP	″	
IC30	TC4017BP	″	
IC31	TC4538BP	″	
IC32	TC4001BP	″	
IC33	TC4069UBP	″	
IC34	BA401	″	
IC35	″	″	
IC36	–	–	
IC37	–	–	
IC38	UPC358C	Integrated Circuit	
IC39	TC4538BP	″	
IC40	TC4013BP	″	
IC41	TC4538BP	″	
IC42	TC4011BP	″	
IC43	TC4066BP	″	
IC44	TC4538BP	″	
Q 1	DTC124EF	D. Transistor	
Q 2	2SD636Q,R	Transistor	
Q 3	DTC124EF	D. Transistor	
Q 4	″	″	
Q 5	″	″	
Q 6	″	″	
Q 7	2SD636Q,R	Transistor	
Q 8	–	–	
Q 9	DTC124EF	D. Transistor	
Q10	2SB641Q,R	Transistor	
Q11	″	″	
Q12	DTC144EF	D. Transistor	
Q13	″	″	

Symbol No.	Part No.	Part Name	Description
D 1	–	–	
D 2	–	–	
D 3	1SS133	Diode	
D 4	–	–	
D 5	1SS133	Diode	
D 6	″	″	
D 7	″	″	
D 8	″	″	
D 9	″	″	
D10	″	″	
D11	″	″	
D12	–	–	
D13	1SS133	Diode	
D14	″	″	
D15	″	″	
D16	″	″	
D17	″	″	
R 1	QRD167J-100	CR	
R 2	″ -154	″	
R 3	″ -100	″	
R 4	″ -104	″	
R 5	″ -102	″	
R 6	″ -103	″	
R 7	″ -103	″	
R 8	″ -333	″	
R 9	″ -102	″	
R10	″ -103	″	
R11	–	–	
R12	QRD167J-103	CR	
R13	″ -102	″	
R14	″ -103	″	
R15	″ -103	″	
R16	″ -333	″	
R17	″ -103	″	
R18	″ -153	″	
R19	QVP4A0B-223	VR	C.F.SPEED ADJ.
R20	QRD167J-103	CR	
R21	″ -154	″	
R22	″ -154	″	
R23	″ -154	″	
R24	″ -154	″	
R25	″ -102	″	
R26	″ -102	″	
R27	–	–	
R28	–	–	
R29	–	–	
R30	–	–	
R31	QRD167J-102	CR	
R32	″ -223	″	
R33	″ -223	″	
R34	″ -223	″	
R35	″ -223	″	
R36	–	–	
R37	QRD167J-223	CR	
R38	″ -223	″	
R39	″ -223	″	
R40	–	–	
R41	–	–	
R42	QRD167J-103	CR	
R43	″ -223	″	
R44	QRV143F-2803	MFR	
R45	QRD167J-563	CR	
R46	″ -563	″	
R47	–	–	
R48	–	–	

Color frame servo

Symbol No.	Part No.	Part Name	Description
R49	QRD167J-224	CR	
R50	" -472	"	
R51	" -104	"	
R52	" -153	"	
R53	QRD121J-391	"	
R54	QRD167J-474	"	
R55	–	–	
R56	–	–	
R57	–	–	
R58	–	–	
R59	–	–	
R60	–	–	
R61	–	–	
R62	–	–	
R63	–	–	
R64	–	–	
R65	–	–	
R66	–	–	
R67	–	–	
R68	–	–	
R69	–	–	
R70	–	–	
R71	QRD167J-682	CR	
R72	" -562	"	
R73	" -473	"	
R74	" -223	"	
R75	QVP4A0B-333	VR	SW POINT
R76	QRD167J-562	CR	
R77	–	–	
R78	QRD167J-103	CR	
R79	" -683	"	
R80	" -473	"	
R81	" -473	"	
R82	" -104	"	
R83	" -682	"	
R84	" -563	"	
R85	" -473	"	
R86	" -473	"	
R87	" -102	"	
R88	" -103	"	
R89	" -103	"	
R90	" -331	"	
R91	" -472	"	
R92	" -473	"	
R93	QRV143F-1132	MFR	
R94	QRD167J-473	CR	
R95	" -473	"	
R96	" -332	"	
R97	QRD161J-333	"	
R98	" -333	"	
R99	" -102	"	
C 1	QCF11HP-223	C Cap	
C 2	QET41CM-107	E Cap	
C 3	QCF11HP-223	C Cap	
C 4	QET41CM-107	E Cap	
C 5	QEN41EM-475	NP Cap	
C 6	QET41HM-105	E Cap	
C 7	QFN41HK-102	MY Cap	
C 8	QCS11HJ-151	C Cap	
C 9	QCF11HP-223	"	
C10	–	–	
C11	–	–	
C12	–	–	

Symbol No.	Part No.	Part Name	Description
C13	–	–	
C14	–	–	
C15	–	–	
C16	–	–	
C17	QCF11HP-223	C Cap	
C18	" -223	"	
C19	QET41CM-107	E Cap	
C20	QCF11HP-223	C Cap	
C21	QET41HM-105	E Cap	
C22	QEN41EM-475	NP Cap	
C23	QFN41HK-102	MY Cap	
C24	QCS11HJ-151	C Cap	
C25	–	–	
C26	QET41CM-107	E Cap	
C27	–	–	
C28	QCS11HJ-151	C Cap	
C29	QFN41HK-103	MY Cap	
C30	QFP42AF-154M	PP Cap	
C31	QFN41HK-103	MY Cap	
C32	QCF11HP-223	C Cap	
C33	QET41CM-107	E Cap	
C34	–	–	
C35	QCF11HP-223	C Cap	
C36	QET41CM-107	E Cap	
C37	" -107	"	
C38	QCF11HP-223	C Cap	
C39	QRD167J-0R0	CR	
C40	QCF11HP-223	C Cap	
C41	" -223	"	
C42	" -223	"	
C43	" -223	"	
C44	" -223	"	
C45	" -223	"	
C46	" -223	"	
C47	" -223	"	
C48	" -223	"	
C49	" -223		
C50	QFN41HK-122	MY Cap	
C51	QCF11HP-223	C Cap	
C52	–	–	
C53	QET41HM-335	E Cap	
C54	QFN41HK-152	MY Cap	
C55	" -122	"	
C56	QCF11HP-223	C Cap	
C57	QFP42AF-272M	PP Cap	
C58	QET41HM-225	E Cap	
L 1	PU48530-221K	Peaking Coil	
L 2	" -221K	"	
L 3	" -221K	"	
L 4	" -221K	"	
L 5	" -221K	"	
L 6	" -221K	"	
RA1	EXB-P85104M	Resistor Array	
	PGD30302A	Colour Frame Bracket Ass'y	
	PGD30265	Colour Frame Bracket	
	GBST3008ZY	Tapping Screw	X6
	PGD30242A-1	Shield Cover Ass'y	

Color frame servo

Symbol No.	Part No.	Part Name	Description
CN 1	PU43351-105	Cap Housing	
CN 2	" -102R	"	
CN 3	" -102	"	
CN 4	" -102Y	"	
CN 5	" -104	"	
CN 6	" -102	"	
CN 7	" -106	"	
CN 8	" -103R	"	
CN 9	" -103	"	
CN10	" -106	"	
CN11	" -102	"	
CN12	" -109	"	
CN13	" -104	"	
CN14	" -102R	"	
	PU54983	Test Pin	TP1–3,5–7,9 11–13,15, 16,18–33

6.2.17 2nd regulator board assembly $\boxed{2}$ $\boxed{5}$ PGE20062B

Symbol No.	Part No.	Part Name	Description
⚠IC 1	SI-3122V	Integrated Circuit	
⚠IC 2	"	"	
⚠IC 3	"	"	
⚠IC 4	STR2012A	"	
⚠IC 5	SI-3122V	"	
⚠IC 6	STR2012A	"	
R 1	QRD167J-822	CR	
R 2	" -472	"	
C 1	QCF11HP-103	C Cap	
C 2	QET41HM-475	E Cap	
C 3	QET41CM-107	"	
C 4	QCF11HP-103	C Cap	
C 5	QET41HM-475	E Cap	
C 6	QET41CM-107	"	
C 7	QCF11HP-103	C Cap	
C 8	QET41HM-475	E Cap	
C 9	QET41CM-107	"	
C10	QCF11HP-103	C Cap	
C11	" -103	"	
C12	QET41HM-107	E Cap	
C13	" -107	"	
C14	QCF11HP-103	C Cap	
C15	QET41CM-107	E Cap	
C16	QCF11HP-103	C Cap	
C17	" -103	"	
C18	QET41HM-107	E Cap	
C19	QETA1HM-477	"	
C20	QCF11HP-103	C Cap	
C21	–	–	
C22	QCF11HP-103	C Cap	
L 1	PU50755	Choke Coil	
L 2	PGZ00176-241	"	
L 3	PU50755	"	
L 4	PGZ00176-241	"	
CN 1	PU43351-8	Cap. Housing	
CN 2	" -11Y	"	
CN 3	" -2	"	
CN 4	" -2R	"	
SW 1	PU49344	Push Switch	
⚠	PGZ00240	Heat Sink	for IC1, 5
⚠	"	"	for IC2, 3
⚠	PGZ00241	"	for IC4
⚠	"	"	for IC6
⚠	PGZ00171	TR Spacer	for IC1
⚠	"	"	for IC2
⚠	"	"	for IC3
⚠	PGZ00151	"	for IC4
⚠	PGZ00171	"	for IC5
⚠	PGZ00151	"	for IC6
	SDSP3010ZY	Screw	for IC4, 6
	SDSP3008ZY	"	for IC1, 2, 3 and 5
⚠	PU51212	Fuse Clip	for F3
	PGD40321	PWB Holder	
	GBST3008ZY	Tapping Screw	x 2
	WBS3000N	Washer	
The following fuse is not included in PGE20062B.			
F 3	QMF51E2-4R0	Fuse	T4 A, AC 250 V

6.2.18 Interface board assembly $\boxed{2}\boxed{8}$ . . PGE10023B

Symbol No.	Part No.	Part Name	Description
IC 1	LH0080H	Integrated Circuit	
IC 2	LH0084H	"	
IC 3	M5L8255AP-5	"	
IC 4	"	"	
IC 5	"	"	
IC 6	"	"	
IC 7	"	"	
IC 8	"	"	
IC 9	PGD30239-1-5	"	PROM
IC10	M58725P	"	
IC11	SN74LS138N	"	
IC12	SN74LS139N	"	
IC13	TC4094BP	"	or UPD4094BC
IC14	"	"	or "
IC15	"	"	or "
IC16	"	"	or "
IC17	"	"	or "
IC18	"	"	or "
IC19	"	"	or "
IC20	TC4021BP	"	or UPD4021BC
IC21	"	"	or "
IC22	"	"	or "
IC23	MC3486P	"	
IC24	MC3487P	"	
IC25	MC14520BCP	"	or TC4520BP
IC26	UPD4050BC	"	or TC4050BP
IC27	"	"	or "
IC28	UPD4081BC	"	or TC4081BP
IC29	SN74LS05N	"	
IC30	MC14075BCP	"	
⚠ IC31	TC40H368P	"	
IC32	UPD4069UBC	"	or TC4069UBP
IC33	SN74LS14N	"	
IC34	TC40H393P	"	
IC35	–	–	
IC36	SN74LS32N	Integrated Circuit	
IC37	–	–	
IC38	TC4020BP	Integrated Circuit	
IC39	TC4094BP	"	or UPD4094BCP
D 1	GL-3HD5	LED	
R 1	QRD167J-222	CR	
R 2	" -222	"	
R 3	" -222	"	
R 4	" -222	"	
R 5	" -471	"	
R 6	" -103	"	
R 7	" -103	"	
R 8	" -103	"	
R 9	" -222	"	
R10	" -222	"	
R11	" -331	"	
R12	" -331	"	
R13	–	–	
R14	QRD167J-103	CR	
R15	" -103	"	

Symbol No.	Part No.	Part Name	Description
R16	QRD167J-105	CR	
R17	" -103	"	
R18	" -103	"	
R19	" -103	"	
R20	" -103	"	
R21	" -103	"	
R22	" -103	"	
R23	" -103	"	
R24	" -331	"	
R25	" -222	"	
R26	" -103	"	
R27	" -103	"	
R28	" -103	"	
R29	" -103	"	
R30	" -103	"	
R31	" -103	"	
R32	" -103	"	
R33	–	–	
R34	QRD167J-101	CR	
R35	" -102	"	
R36	" -102	"	
R37	" -102	"	
R38	" -102	"	
R39	" -103	"	
R40	" -103	"	
R41	" -103	"	
R42	" -103	"	
R43	" -103	"	
R44	" -103	"	
R45	–	–	
R46	QRD167J-103	CR	
C 1	QCS11HJ-330	C Cap	
C 2	" -330	"	
C 3	QFM41HK-103	MY Cap	
C 4	" -103	"	
C 5	QCF11HP-473	C Cap	
C 6	QCS11HJ-101	"	
C 7	QET41CM-227	E Cap	
C 8	" -108	"	
C 9	–	–	
C10	QET41CM-227	E Cap	
C11	" -227	"	
C12	" -227	"	
C13	" -227	"	
C14	" -227	"	
C15	QCF11HP-473	C Cap	
C16	" -473	"	
C17	" -473	"	
C18	" -473	"	
C19	" -473	"	
C20	" -473	"	
C21	" -473	"	
C22	" -473	"	
C23	" -473	"	
C24	" -473	"	
C25	" -473	"	
C26	" -473	"	
C27	" -473	"	

Interface

Symbol No.	Part No.	Part Name	Description
C28	QCF11HP-473	C Cap	
C29	″ -473	″	
C30	″ -473	″	
C31	″ -473	″	
C32	″ -473	″	
C33	″ -473	″	
C34	″ -473	″	
C35	″ -473	″	
C36	″ -473	″	
C37	″ -473	″	
C38	″ -473	″	
C39	″ -473	″	
C40	″ -473	″	
C41	″ -473	″	
C42	″ -473	″	
C43	″ -473	″	
C44	″ -473	″	
C45	″ -473	″	
C46	″ -473	″	
C47	″ -473	″	
C48	″ -473	″	
C49	—	—	
C50	QCF11HP-473	C Cap	
C51	—	—	
C52	QCF11HP-473	C Cap	
C53	″ -473	″	
C54	″ -473	″	
C55	″ -473	″	
C56	—	—	
C57	QCF11HP-473	C Cap	
C58	″ -473	″	
C59	—	—	
C60	QCF11HP-473	C Cap	
L 1	PGZ00160	Choke Coil	
RA 1	EXB-P88103M	Resistor Array	
RA 2	EXB-P84103M	″	
RA 3	″	″	
⚠ VA 1	PU49624-2	Varistor	
⚠ VA 2	″ -2	″	
⚠ VA 3	″ -2	″	
⚠ VA 4	″ -2	″	
SW 1	QSS1K41-L01	Dip Switch	
SW 2	QSS1K21-L01	″	
CN 1	PU43351-9	Cap. Housing	
CN 2	PGZ00143	Connector	
	PGZ00145-2	40-pin Cable	
⚠ X 1	PGZ00157-1-1	Crystal	
	PGZ00083	IC Socket	for IC9 or PGZ00331-028
•	PGD30233	Interface PWB Bracket	
	GBST3008ZY	Tapping Screw	x 6
	PU43135-2-105	Nylon Edging	x 2
	PU49485	Wire Clamp	
	PGD30279A	Interface PWB Bracket Ass'y	
	PU54983	Test Pin	TP1–23

6.2.19 Time code board assembly 3 2 PGE20100A-1

Symbol No.	Part No.	Part Name	Description
IC 1	M5220P	Integrated Circuit	
IC 2	LA7016	″	
IC 3	BA401	″	
Q 1	2SD636Q,R,S	Transistor	
Q 2	″	″	
Q 3	″	″	
Q 4	2SD661T,U	″	
Q 5	″	″	
Q 6	2SD636Q,R,S	″	
Q 7	DTC124EF	D. Transistor	
Q 8	2SD636Q,R,S	Transistor	
Q 9	″	″	
Q10	″	″	
Q11	″	″	
Q12	″	″	
Q13	″	″	
Q14	—	—	
Q15	DTC124EF	D. Transistor	
Q16	DTA124EF	″	
Q17	″	″	
Q18	″	″	
Q19	″	″	
Q20	″	″	
Q21	″	″	
Q22	2SD636Q,R,S	Transistor	
Q23	″	″	
Q24	2SD973A,R	″	
Q25	2SB793A,R	″	
D 1	1SS133	Diode	
D 2	″	″	
D 3	—	—	
D 4	—	—	
D 5	RD6.8EB1	Zener Diode	
D 6	1SS133	Diode	
D 7	″	″	
R 1	QRD167J-103	CR	
R 2	″ -330	″	
R 3	″ -473	″	
R 4	″ -682	″	
R 5	″ -102	″	
R 6	″ -221	″	
R 7	″ -103	″	
R 8	″ -473	″	
R 9	″ -822	″	
⚠ R10	QRZ0052-470	FR	
R11	QRD167J-821	CR	
R12	″ -101	″	
R13	″ -222	″	
R14	″ -822	″	
R15	″ -822	″	
R16	″ -821	″	

Time code

Symbol No.	Part No.	Part Name	Description
R17	QRD167J-821	CR	
R18	—	—	
R19	—	—	
⚠ R20	QRZ0052-470	FR	
R21	QRD167J-394	CR	
R22	" -122	"	
R23	" -105	"	
R24	" -103	"	
R25	" -823	"	
R26	" -330	"	
R27	" -222	"	
R28	" -103	"	
⚠ R29	QRZ0052-470	FR	
R30	—	—	
R31	QRD167J-103	CR	
R32	" -102	"	
R33	" -104	"	
R34	QVZ3508-102	VR	OUT PUT LEVEL
R35	" -103	"	REC LEVEL
R36	" -331	"	PB LEVEL
R37	QRD167J-822	CR	
R38	" -562	"	
R39	" -562	"	
⚠ R40	QRZ0052-470	FR	
R41	QRD167J-103	CR	
⚠ R42	QRZ0052-470	FR	
R43	QRD167J-331	CR	
R44	" -563	"	
R45	" -104	"	
R46	" -104	"	
R47	" -223	"	
R48	" -223	"	
R49	" -182	"	
R50	" -222	"	
R51	" -823	"	
⚠ R52	QRZ0052-470	FR	
R53	QRD167J-472	CR	
R54	" -103	"	
R55	" -103	"	
R56	" -561	"	
R57	" -561	"	
R58	" -103	"	
R59	—	—	
R60	QRD167J-223	CR	
R61	—	—	
R62	QRD167J-561	CR	
R63	" -561	"	
R64	—	—	
R65	QRD167J-104	CR	
C 1	QEU41CM-106	E Cap	
C 2	" -106	"	
C 3	" -106	"	
C 4	" -227	"	
C 5	" -106	"	
C 6	" -226	"	
C 7	" -226	"	
C 8	QFN41HJ-153	MY Cap	
C 9	QEU41CM-227	E Cap	
C10	QER40JM-477	"	
C11	—	—	
C12	QEU41CM-226	E Cap	
C13	QEU41CM-106	E Cap	
C14	" -226	"	
C15	" -227	"	
C16	QEN41HM-225	NP Cap	
C17	QEU41CM-106	E Cap	
C18	" -227	"	
C19	" -227	"	
C20	" -227	"	
C21	" -106	"	
C22	" -106	"	
C23	QFN41HJ-392	MY Cap	
C24	QCS11HJ-151	C Cap	
C25	QCF11HP-223	"	
C26	" -223	"	
C27	QEU41CM-227	E Cap	
C28	—	—	
C29	QEU41CM-476	E Cap	
C30	" -476	"	
C31	" -476	"	
C32	" -476	"	
C33	—	—	
C34	QCF11HP-223	C Cap	
C35	" -223	"	
C36	QEU41CM-336	E Cap	
CN 4	PU43351-4	Cap. Housing	
CN 5	" -3Y	"	
CN 6	" -5Y	"	
CN 7	" -3R	"	
	PU56008	Test Pin	TP1–6

6.2.20 LED board (TAPE START) 3 6

Symbol No.	Part No.	Part Name	Description
	PU52311-1-3	Circuit Board	
	NJL1120L	LED	
	PU51115	LED Holder	

6.2.21 LED board (TAPE END) 3 7

Symbol No.	Part No.	Part Name	Description
	PU52311-1-3	Circuit Board	
	NJL1120L	LED	
	PU51115	LED Holder	

6.2.22 LED board (SUP TAPE SLACK) 3 8

Symbol No.	Part No.	Part Name	Description
	PU52311-1-3	Circuit Board	
	NJL1120L	LED	
	PU51115	LED Holder	

6.2.23 LED board (TU TAPE SLACK) 3 9

Symbol No.	Part No.	Part Name	Description
	PU52311-1-3	Circuit Board	
	NJL1120L	LED	
	PU51115	LED Holder	

6.2.24 Photo transistor board assembly (TAPE START) 4 0 .... PU48261G

Symbol No.	Part No.	Part Name	Description
	PT-352V	Photo Transistor	

6.2.25 Photo transistor board assembly (TAPE END) 4 1 .... PU48261F

Symbol No.	Part No.	Part Name	Description
	PT-352V	Photo Transistor	

6.2.26 Photo transistor board assembly (SUP TAPE SLACK) 4 2 .... PU48261G

Symbol No.	Part No.	Part Name	Description
	PT-352V	Photo Transistor	

6.2.27 Photo transistor board (TU TAPE SLACK) 4 3

Symbol No.	Part No.	Part Name	Description
	PGE40067	Circuit Board	
	PT-352V	Photo Transistor	

6.2.28 SUP T. detect board 4 4

Symbol No.	Part No.	Part Name	Description
	PU48249	Circuit Board	

6.2.29 TU T. detect board 4 5

Symbol No.	Part No.	Part Name	Description
	PU48249	Circuit Board	

6.2.30 CC1 board assembly 5 1 ..... PGE40054A-4

Symbol No.	Part No.	Part Name	Description
CN 1	PU43351-109	Cap. Housing	

6.2.31 CC2 board assembly 5 2 .... PGE30029A-01

Symbol No.	Part No.	Part Name	Description
PHOTO 1	GP-1A01	Photo Coupler	INTAKE END
PHOTO 2	"	"	EJECT END
⚠ R 1	QRZ0054-151	FR	

6.2.32 CC3 board assembly 5 3 .... PGE40055A-03

Symbol No.	Part No.	Part Name	Description
PHOTO 1	GP-1A01	Photo Coupler	CASSETTE DET
⚠ R 1	QRZ0054-221	FR	

6.2.33 LED display board assembly 5 7 .... PGZ00154-001

Refer to Sec. 4.41 (Page 4-38).

6.2.34 Operation-1 board assembly 5 8
. . . . . PGE10016D1

Symbol No.	Part No.	Part Name	Description
D12	GL-9HY26	LED	
D13	GL-9NG26	"	
D14	"	"	
D15	"	"	
D16	–	–	
D17	–	–	
D18	GL-9NG26	LED	
R 1	–	–	
R 2	–	–	
R 3	–	–	
R 4	QRD167J-390	CR	
R 5	" -390	"	
R 6	" -390	"	
R 7	" -390	"	
R 8	" -390	"	
R 9	" -390	"	
R10	" -390	"	
R11	QRD187J-471	"	
R12	" -391	"	
R13	" -391	"	
R14	" -391	"	
R15	QRD121J-151	"	
R16	" -151	"	
R17	" -151	"	
R18	" -151	"	
R19	" -151	"	
R20	" -151	"	
R21	" -151	"	
R22	" -181	"	
R23	QRD167J-121	"	
R24	" -121	"	
R25	QRD121J-820	"	
R26	" -820	"	
R27	QRD187J-391	"	
R28	–	–	
R29	–	–	
R30	–	–	
R31	QRD121J-820	CR	
R32	" -820	"	
R33	" -820	"	
R34	" -680	"	
R35	" -680	"	
R36	" -680	"	
R37	" -680	"	
R38	" -820	"	
R39	" -680	"	
R40	–	–	
R41	–	–	
R42	–	–	
R43	–	–	
R44	–	–	
R45	–	–	
R46	–	–	
R47	QRD121J-820	CR	
R48	–	–	
R49	–	–	
R50	–	–	
R51	QRD127J-391	CR	
R52	" -391	"	
R53	" -391	"	
R54	" -391	"	
R55	" -391	"	
R56	QRD127J-391	CR	
R57	" -391	"	
R58	" -391	"	
R59	" -391	"	
R60	–	–	
R61	–	–	
R62	–	–	
R63	–	–	
R64	–	–	
R65	–	–	
R66	–	–	
R67	QRD127J-391	CR	
C18	QET41CM-107	E Cap	
SW 1	PGZ00155	Push Switch	SEARCH
SW 2	PGZ00155-2-1	"	FF
SW 3	" -2-1	"	REW
SW 4	PGZ00156	"	STOP
SW 5	PGZ00156-2	"	EJECT
SW 6	" -3	"	PAUSE/STILL
SW 7	" -4-1	"	PLAY
SW 8	PGZ00155	"	PREROLL
SW 9	PGZ00156-5	"	REC
SW10	–	–	
SW11	–	–	
SW12	–	–	
SW13	–	–	
SW14	–	–	
SW15	–	–	
SW16	–	–	
SW17	–	–	
SW18	–	–	
SW19	–	–	
SW20	–	–	
SW21	PGZ00155-3	Push Switch	AUDIO DUB
	PU50633	LED Spacer (A)	for D12,13,14,15
	PGZ00154B	LED Display (Refer	to Sec. 6.2.33.)
	PU52455	PC Support	x 6
	PGZ00230	"	x 6
FJ 1	PGZ00229-2	Jump Wire	
FJ 2	" -2	"	
FJ 3	" -3	"	
FJ 4	" -2	"	

6.2.35 Operation-2 board assembly 5 9
. . . . . PGE10016D2

Symbol No.	Part No.	Part Name	Description
IC 1	TC4094BP	Integrated Circuit	or UPD4094BC
IC 2	TC4021BP	"	or UPD4021BC or HD14021B
IC 3	TC4094BP	"	or UPD4094BC
IC 4	TC4021BP	"	or UPD4021BC
IC 5	"	"	or "
⚠IC 6	UPD650C-219	"	
IC 7	TC5022BP	"	
IC 8	TC4019BP	"	
IC 9	TC4094BP	"	or UPD4094BC
IC10	–	–	
IC11	M54519P	Integrated Circuit	
IC12	"	"	
IC13	"	"	
IC14	BA618	"	
Q 1	DTA124EF	D. Transistor	
Q 2	DTC124EF	"	
D 1	1SS133	Diode	
D 2	"	"	
D 3	"	"	
D 4	"	"	
D 5	"	"	
D 6	"	"	
D 7	"	"	
D 8	"	"	
D 9	"	"	
D10	"	"	
D11	"	"	
D12	–	–	
D13	–	–	
D14	–	–	
D15	–	–	
D16	1SS133	Diode	
D17	"	"	
R 1	QRD167J-564	CR	
R 2	" -184	"	
R 3	" -103	"	
R71	QRD167J-103	CR	
R72	" -103	"	
R73	" -103	"	
R74	" -103	"	
R75	" -103	"	
R76	" -103	"	
R77	" -103	"	
R78	" -103	"	
R79	" -103	"	
R80	" -103	"	
R81	" -103	"	

Symbol No.	Part No.	Part Name	Description
R82	QRD167J-103	CR	
R83	" -103	"	
R84	" -103	"	
R85	" -103	"	
R86	" -472	"	
C 1	QET41CM-107	E Cap	
C 2	QCS11HJ-471	C Cap	
C 3	" -101	"	
C 4	QCF11HP-473	"	
C 5	" -473	"	
C 6	" -473	"	
C 7	" -473	"	
C 8	" -473	"	
C 9	" -473	"	
C10	" -473	"	
C11	" -473	"	
C12	" -473	"	
C13	" -473	"	
C14	" -473	"	
C15	" -473	"	
C16	" -473	"	
C17	" -473	"	
C18	–	–	
C19	QCS11HJ-221	C Cap	
C20	QET41CM-227	E Cap	
C21	QEU51CM-228	"	
C22	" -108	"	
C23	QET41HM-474	"	
RA 1	EXB-P88333M	Resistor Array	
RA 2	"	"	
RA 3	EXB-P84333M	"	
RA 4	EXB-P85333M	"	
RA 5	EXB-P88333M	"	
⚠L 1	PGZ00160	Choke Coil	
⚠L 2	"	"	
⚠CF 1	PU50224	Ceramic Filter	
CN 1	PGZ00143	Connector	
CN 2	PU43351-6	Cap. Housing	

The following F. cable ass'y are not included in PGE10016D2.

	PGZ00145	F. Cable Ass'y	

6.2.36 Search VR board assembly 6 0 PGE10016D3

Symbol No.	Part No.	Part Name	Description
SW20	PGZ00153-1-1	R. Code Switch	

6.2.37 Code switch board 6 2

Symbol No.	Part No.	Part Name	Description
	PGE40051	Circuit Board	
SW 1	PGZ00175-2	Code Switch	Y. FR EQ RESPONSE

6.2.38 Phones board 6 3

Symbol No.	Part No.	Part Name	Description
	PGE30027-1-2	Circuit Board	
R 1	PGZ00288	VR	H. PHONE
R 2	PGZ00219	"	SKEW
R 3	QRD167J-270	CR	
R 4	" -270	"	
	PU51575	Headphone Jack	J1017

6.2.39 Test pin board 6 4

Symbol No.	Part No.	Part Name	Description
	PGE40056-1-1	Circuit Board	
R 1	QRD167J-750	CR	
R 2	" -151	"	

6.2.40 Video input SW board 6 5

Symbol No.	Part No.	Part Name	Description
	PGE40057	Circuit Board	
SW 1	—	—	
SW 2	QSL2218-111	Switch	VIDEO INPUT

6.2.41 VR board 6 7

Symbol No.	Part No.	Part Name	Description
	PGE30031-1-1	Circuit Board	
R 1	PGZ00214	VR	AUD-1 LEVEL
R 2	"	"	AUD-2 LEVEL
R 3	PGZ00216	"	VIDEO LEVEL
R 4	PGZ00215	"	TRACKING
R 5	QRD167J-820	CR	

6.2.42 Audio/CTL head board 7 1

Symbol No.	Part No.	Part Name	Description
	PGE40061-1-1	Circuit Board	
CN 1	PU43351-106	Cap. Housing	
CN 2	" -104	"	
CN 3	" -103	"	

6.2.43 Reel FG board assembly 7 2 . . . PGE30028A

Symbol No.	Part No.	Part Name	Description
PC 1	GP-1A01	Photo Coupler	
PC 2	"	"	
	PRD40238	Plate (P.C.)	
R 1	QRD141J-222	CR	
R 2	" -222	"	
CN 1	PU43351-106	Cap. Housing	
CN 2	" -102	"	
CN 3	" -102R	"	

6.2.44 Address head board 7 5

Symbol No.	Part No.	Part Name	Description
	PGE40060	Circuit Board	

6.2.45 Colour cut switch board 7 6

Symbol No.	Part No.	Part Name	Description
	PGE40076	Circuit Board	
SW 1	QSS2201-002	Slide Switch	COLOUR CUT

6.2.46 Audio level switch board $\boxed{7}\boxed{7}$

Symbol No.	Part No.	Part Name	Description
	PGE40066-1-3	Circuit Board	
SW 1	QSS1C43-L01	Slide Switch	AUD-1 LEVEL
SW 2	" -L01	"	AUD-2 LEVEL
SW 3	QSS2201-002	"	AUD OUT LEVEL
R 1	QRD167J-332	CR	
R 2	" -332	"	
R 3	" -151	"	
R 4	" -151	"	
R 5	" -562	"	
R 6	" -562	"	
R 7	" -562	"	
R 8	" -562	"	
R 9	" -561	"	
R10	" -561	"	
R11	" -390	"	
R12	" -390	"	

6.2.47 Remote-1 connector board $\boxed{7}\boxed{8}$

Symbol No.	Part No.	Part Name	Description
	PGE40086	Circuit Board	
CN 1	PU43351-9	Cap. Housing	
⚠ VA 1	PU49624-2	Varistor	
⚠ VA 2	" -2	"	
⚠ VA 3	" -2	"	
⚠ VA 4	" -2	"	
⚠ VA 5	" -2	"	

6.2.48 Connector board $\boxed{7}\boxed{9}$

Symbol No.	Part No.	Part Name	Description
	PGE30038-01-01	Circuit Board	

6.2.49 Video in terminal board assembly $\boxed{8}\boxed{0}$ PGE30033B

Symbol No.	Part No.	Part Name	Description
R 1	QRD167J-750	CR	
J1005	PGZ00440	BNC Connector	RF OUT
J1007	PGZ0040	BNC Connector	VIDEO IN
J1020	PGZ00173	7-pin Connector	DUB IN
	PU48611	Ring	J1005, J1007
	Q03093-439	Washer	J1005, J1007
	PGD30225	Video In Bracket	

6.2.50 Video out terminal board assembly $\boxed{8}\boxed{1}$ PGE30034B

Symbol No.	Part No.	Part Name	Description
R 1	QRD167J-750	CR	
SW 1	QSS2301-007	Slide Switch	COLOR LOCK
J1009	PU51213	BNC Connector	SC IN
J1010	"	"	VIDEO OUT A
J1011	"	"	VIDEO OUT B
J1021	PGZ00174	7-pin Connector	DUB OUT
	PU48611	Ring	J1009, J1010, J1011
	Q03093-439	Washer	J1009, J1010, J1011
	SDSP2604M	Screw	SW 1
	PGD30226	Video Out Bracket	

6.2.51 Switching regurator board assembly $\boxed{8}$ $\boxed{4}$

Symbol No.	Part No.	Part Name	Description
⚠ PC 1	PGZ00435-020	Circuit Board	
⚠ IC 1	TM-016	Integrated Circuit	
IC 2	SI-3122V	"	or LA5032
IC 3	SI-3522V	"	
⚠ Q 1	2SC3262	Transistor	
⚠ Q 2	2SB892S	"	or 2SA1020
⚠ Q 3	2SA1318S	"	or 2SA733 2SA1015
⚠ Q 4	2SD882S	"	or 2SD1348
⚠ Q 5	2SA1009L	"	
⚠ Q 6	2SD882S	"	or 2SD1348
⚠ Q 7	2SC3331S	"	or 2SC945
⚠ Q 8	2SA1318S	"	
⚠ D 1	S4VB60	Diode Stack	or RB406
⚠ D 2	RU-2B	Diode	
⚠ D 3	EG01C	"	
⚠ D 4	"	"	
⚠ D 5	"	"	
D 6	F1-06	"	or EG01A
⚠ D 7	S1YB20	Diode Stack	
D 8	HZ7A1	Zener Diode	
D 9	HZ12B1	"	
D10	"	"	
D11	F1-06	Diode	or EG01A
D12	DS442	"	or 1S953
D13	"	"	or "
D14	"	"	or "
D15	HZ16-2	Zener Diode	
D16	DSF10B	Diode	or 10D-1
D17	D8LCA20	Diode Stack	or ESAC92-02 CTL-22S
D18	S2LA20	Diode	or ERB93-02
D19	"	"	or "
D20	DS446	"	or 1S954
D21	RK44	"	or D3S4M
D22	"	"	or "
D23	F1-06	"	or EG01A
D24	"	"	or "
D25	CTG24S	"	
D26	F1-06	"	or EG01A
D27	HZ7A1	Zener Diode	
D28	HZ6B3	"	
D29	DSF10B	Diode	or 10D-1
D301	HZ7B1	Zener Diode	
⚠ PHC 1	TLP741J	Photo coupler	
⚠ PHC 2	"	"	

Symbol No.	Part No.	Part Name	Description
R 1	QRG011J-104	OMR	
R 2	" -104	"	
⚠ R 3	" -104	"	
⚠ R 4	" -8R2	"	
⚠ R 5	QRG121J-390	"	
⚠ R 6	QRG031J-331	"	
⚠ R 7	QRD141J-101	CR	
R 8	" -821	"	
⚠ R 9	QRG121J-101	OMR	
⚠ R10	" -101	"	
⚠ R11	QRD141J-331	CR	
R12	QRD161J-221	"	
R13	" -821	"	
R14	" -472	"	
R15	" -562	"	
R16	" -103	"	
R17	" -103	"	
R18	" -103	"	
R19	" -103	"	
R20	" -822	"	
R21	" -103	"	
R22	" -222	"	
R23	" -822	"	
R24	" -103	"	
R25	" -331	"	
R26	" -271	"	
⚠ R27	QRZ00211-058	FR	
R28	QRD161J-822	CR	
R29	" -221	"	
R30	" -332	"	
⚠ R31	PGZ00211-058	FR	
⚠ R32	PGZ00435-030	"	
⚠ R33	PGZ00211-058	"	
R34	QRG011J-821	OMR	
R35	QRD161J-103	CR	
R36	" -332	"	
R37	QRD141J-332	"	
⚠ R38	PGZ00211-058	FR	
R39	QRD161J-123	CR	
R40	" -472	"	
⚠ R41	PGZ00211-058	FR	
⚠ R42	QRD161J-223	CR	
⚠ R43	" -223	"	
R44	" -472	"	
R45	" -102	"	
⚠ C 1	PGZ00435-032	MY Cap	
⚠ C 2	" -032	"	
⚠ C 3	PGZ00211-060	C Cap	
⚠ C 4	" -060	"	
⚠ C 5	" -060	"	
⚠ C 6	PGZ00435-033	MY Cap	
⚠ C 7	" -034	E Cap	
⚠ C 8	" -034	"	
⚠ C 9	" -035	"	
C10	" -036	MY Cap	
⚠ C11	" -037	C Cap	
⚠ C12	PGZ00211-060	"	
C13	PGZ0435-038	E Cap	
C14	" -039	"	
C15	" -040	MY Cap	

Symbol No.	Part No.	Part Name	Description
C16	PGZ00211-066	E Cap	
C17	PGZ00435-038	"	
C18	PGZ00211-067	"	
C19	PGZ00435-041	"	
C20	" -042	MY Cap	
C21	" -041	E Cap	
C22	" -043	MY Cap	
C23	" -043	"	
C24	" -044	E Cap	
C25	" -044	"	
C26	" -045	MY Cap	
C27	" -043	"	
C28	" -044	E Cap	
C29	" -040	MY Cap	
C30	PGZ00211-065	E Cap	
C31	PGZ00435-040	MY Cap	
C32	" -046	E Cap	
C33	" -036	MY Cap	
C34	" -047	E Cap	
C35	" -055	MY Cap	
C36	PGZ00211-073	E Cap	
C37	" -073	"	
C38	PGZ00435-043	MY Cap	
C39	–	–	
C40	PGZ00435-036	MY Cap	
C41	" -048	E Cap	
⚠C42	" -040	MY Cap	
⚠C43	" -040	"	
⚠L 1	PGZ00435-025	Choke Coil	COMMON
⚠L 2	" -025	"	"
L 3	" -026	"	
L 4	" -027	"	
L 5	" -028	"	
⚠T 1	PGZ00435-021	Transformer	POWER
⚠T 2	" -022	"	DRIVE
⚠T 3	" -023	"	CONVERTER
T 4	" -024	"	CARRENT
T 5	" -024	"	"
VR 1	PGZ00435-031	VR	AC IN VOL THRESHOLD
VR 2	" -031	"	+13.3 V ADJ
VR 3	" -031	"	+30 V ADJ
⚠TH 1	PGZ00211-086	Thermister	
⚠TH 2	" -086	"	
⚠SCR 1	BCR6AM	Triac	or AC05FGM
SCR 2	CR02AM4	Thyristor	or 03P4M

Symbol No.	Part No.	Part Name	Description
⚠K 1	PGZ00435-014	Ferrite Bead	
⚠K 2	" -014	"	
⚠K 3	" -014	"	
⚠K 4	" -014	"	
⚠K 5	" -014	"	
⚠K 6	" -014	"	
⚠K 7	" -014	"	
⚠K 8	" -014	"	
⚠K 9	" -014	"	
⚠	PGZ00435-053	Isolation Plate	
CN 1 (CN 3)	PGZ00435-051	Connector Ass'y (10 P)	Incl. Board in connector, wire
CN 2 (CN 4)	PGZ00435-052	Connector Ass'y (8 P)	Incl. Board in connector, wire
⚠CN 5 (CN 1)	PGZ00435-049	AC Connector (2 P)	
CN 6 (CN 2)	PGZ00435-050	FAN Connector (2 P)	

6.2.52 Full erase head board [8] [8]

Symbol No.	Part No.	Part Name	Description
	PGE40059	Circuit Board	

6.2.53 Hour meter board [9] [7]

Symbol No.	Part No.	Part Name	Description
	PGE40013	Circuit Board	
R 1	QRD167J-273	CR	
R 2	" -332	"	
R 3	" -394	"	
	PU44398	Fuse Socket	x 2

6.2.54 RCA board [9] [8]

Symbol No.	Part No.	Part Name	Description
	PGE40107-01-01	Circuit Board	
R 1	QRD163J-100	CR	